

OIL CONTRACTS



How to read and
understand them



Oil Contracts- How to Read and Understand them

ed. Edition 1

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FOREWORD



FOREWORD

From now until the time you finish this sentence, another 5,000 barrels of oil will have come out of the ground. Or 10,000 barrels by the end of this one, worth about a million dollars on world markets today. Suppose we created a World Oil Production Index (WOPI) as a measure of money, like a light year in distance. WOPI would equal a spacious Central Park apartment in a minute, the most expensive skyscraper ever built, Burj Khalifa, in a morning, and the net worth of Facebook's Mark Zuckerberg in two weeks.

Or, alternatively, WOPI would surpass the GDP of the Democratic Republic of Congo, a country of 70 million people, in a day and a half, and the entire annual aid budget to Africa in four days. It would, in fact, take about two weeks of WOPI each year to eliminate absolute poverty among the 1.3 billion people around the world who subsist on less than \$1.25 a day each. It's not news of course that oil generates a lot of money. But it's good to get a handle on just how much.

It is petroleum contracts that express how this money is split and who makes what profits, just as it is the contracts that determine who manages operations and how issues such as the environment, local economic development, and community rights are dealt with. The share price of ExxonMobil, the question of who carries responsibility for Deepwater Horizon, whether Uganda will be able to stop importing petrol, and how much it costs to heat and light homes in millions of homes - these are issues which depend directly on clauses in the contracts signed between the governments of the world and the oil companies.

For most of the 150 years of oil production, these contracts have remained hidden, nested in a broader secrecy that surrounded all aspects of the industry. Governments claimed national security prerogatives, companies said commercial sensitivity precluded making them available.

But the last few years have seen the emergence of the the idea that these contracts are of such high public interest that they transcend normal considerations of confidentiality in business, and should be published. A few governments and companies have published contracts. Academic institutions such as the University of Dundee in the UK and NGOs such as the Revenue Watch Institute are just now, at the end of 2012, beginning to collect the contracts that are in the public domain into databases searchable over the Internet.

Contract transparency is the natural next stage of the transparency movement. The initiatives which began in the 1990s around 'Resource Curse', leading to the creation of the Extractive Industries Transparency Initiative in 2002, have succeeded in opening up a public conversation. Governments and companies now acknowledge the importance of openness and ethical business. CSR was born to

counter 'Blood Diamonds'. But there is as yet little systematic public understanding of how these titanic industries actually work. Activists and journalists sometimes penetrate dark corners and uncover kickbacks and secret deals, and occasionally trigger a public outcry that effects change. But public suspicion remains high around the world, fueled largely by this secrecy. In dozens of countries around the world public debate discussion continues with the main documents at the heart of this industry remaining absent.

Casual rhetoric about how "the government" or "the state" is being so secretive is not helpful because it misidentifies - and actually understates - the degree of dysfunctionality and asymmetry of information that can exist. This is often "deep state" stuff, belonging to a world of aides and special advisors with ill-defined roles, where the regular apparatus of the state can also be out of the loop. In one country, senior diplomats in its foreign ministry lack the most basic understanding of the industry that generates 90 percent of its revenues and governs relations with its neighbours, with whom it shares sizeable fields. In another, the finance minister himself has been denied access to the petroleum contracts which determine how much revenue he is supposed to collect from international oil companies and others. In a third country a bid round went bad, and contracts were delayed for two years, because a phone call to clarify basic details wasn't returned. Ministers of the economy, planning and environment are rarely consulted about how contracts can integrate into broader government policy.

And yet, because of the pioneering move to publish by some governments and companies, the chance now exists to begin to create public understanding of petroleum contracts, based on those that exist in the public domain. This book is a first attempt to rise to that opportunity. We aim to reach at least ten thousand people around the world who may be engaged in the industry, or in governance of or transparency activism around it, but who may not have had the chance to gain professional exposure to petroleum contracts and the issues of how they are actually negotiated. We hope they will include people in the public and private sectors of 50 countries, journalists and civil servants and local business communities as well as promoting a broader understanding of the negotiating process within the companies themselves.

The sections of the book are intended to lead the non-specialist reader through a logical sequence in understanding contracts. Section One sets the stage with background context. Section Two, who the players are, establishes the formal parties to a petroleum contract and the normal provisions of who does what and who decides what according to the contract. Section Three, 'The Money', goes to the heart of the negotiation and deals with all the different revenue streams and tools that go into constructing ever more complex financial arrangements.

Then we devote two sections to subjects which are handled in contracts but often

in passing and at the last minute. Section Four deals with the linkages between the petroleum industry and economic development as a whole in the producing country, as dealt with in the contract, while Section Five looks at clauses relating to health, safety and environmental protection. Finally, in Section Six, Lawyers Yammering On, we look at pure legal aspects, dispute and arbitration procedures.

We quote liberally from a family of petroleum contracts throughout the book that come from eight countries - Afghanistan, Azerbaijan, Brazil, Ghana, Indonesia, Iraq, Libya and Timor Leste. They were selected to represent various structures in contracts, stages of development of petroleum industry and most of all because they are in the public domain. Other contracts are referred to from time to time.

This book has been written in five days from start to finish, using the Booksprint technique pioneered by Adam Hyde. I am writing this foreword as its last entry on a Friday afternoon at Schloss Neuhausen little more than 100 hours after we sat down to storyboard it. This is both a source of pride - and our first and last defence when our colleagues and the broader community point out inaccuracies, gaps and other defects, as we hope they will and encourage them to do.

The Booksprint is a collaborative writing technique of astonishing power in which colleagues constantly brainstorm, write, edit and copy-edit each other in a workflow that somehow manages to combine high fluidity with structure. But inevitably in a process of such speed there will be unevenness and difference in tone and perhaps, at the margins, in substance, between one section and another. It is a work of collective authorship published under the Creative Commons license, but that does not mean that every one of us, or the affiliations we represent, subscribes to every statement made. This book is more team work than group think.

The writers of this book are: Peter Eigen, founder of Transparency International and founding chair of EITI; Cindy Kroon from the World Bank Institute; Herbert M'cleod from Sierra Leone; Susan Maples, Office of the Legal Adviser to Liberian President Ellen Johnson Sirleaf; Nurlan Mustafayev from the legal affairs department at SOCAR, Azerbaijan's state oil company; Jay Park, a lawyer from Norton Rose; Geoff Peters; Nadine Stiller from the German agency for international cooperation GIZ; Lynn Turyatamba from the NGO International Alert in Uganda; Johnny West, founder of the OpenOil consultancy; and Sebastian Winkler, Director Europe for Global Footprint Network. All work on the book was pro bono or mandated by the organisations we work for. If you want to hear each of us in our own words talking about the project, go to <http://openoil.net/booksprint>

Adam Hyde of SourceFabric (Project Lead for Booktype) and BookSprints.net facilitated the Book Sprint and Lynne Stuart designed the book and its art work. First readers, and copy editors were the OpenOil team of Steffi Heerwig, Robert Malies, Zara Rahman and Lucy Wallwork.

We received financial assistance to write this book from: Internews Europe, a

media development organisation based in London; Petroleum Economist magazine (with no editorial input - our views and mistakes remain our own); and the German Federal Ministry for Economic Cooperation and Development (BMZ) through GIZ.

We want this book to be the start of a broader public conversation about petroleum contracts. It will be a living document, subject to constant critique on the Web and periodic review. Anyone can download it at any time, print and sell it, and adapt it. Please bear in mind, though, that because our work is Creative Commons license and available to everyone, the terms of copyright say that you inherit the terms of that license and any work you base on ours will legally be under Creative Commons license too.

We aim for the book to become the basis for localised versions which take a look at petroleum contracts country by country. There is no reason why, three years from now, there shouldn't be, for every country in the world with a petroleum industry (or hoping to develop one), an editorially independent and technically informed book put together by a group of sympathetic but objective professionals from a range of disciplines which analyses that country's core contracts, available to the public free of charge. We would be delighted to help make that happen with anyone in a producing country who has an interest.

We also aim to make it the basis for training courses, ported to all relevant locations and languages, which bring a fundamental and holistic understanding of petroleum contracts to a much wider audience than has had the chance to engage with them so far.

It is our belief that even though these contracts were not written with the public in mind, with a little effort they can be understood to a level which enables real, mature and informed public discussion. We hope that after reading this book you will agree.

Johnny West
Founder OpenOil.net
johnny.west@openoil.net

CONTEXT



PETROLEUM BASICS

You put it in your car. It heats your house. Flies planes. One day we might be beyond it, but today we are not. Petroleum. The material behind these critical functions that literally fuel the world, is made up of strings of carbon and hydrogen, known as hydrocarbons, formed from the compression of organic matter over hundreds of millions of years. Old stuff that drives the modern age. Oil, gas, petrol, diesel, butane - they all come from hydrocarbons beneath the earth's surface that are then refined to make them more useful to us. This book is about the contracts that make finding and producing these substances possible right now.



Generally we use 'petroleum' to mean both oil and gas, because both contain hydrocarbon compounds, and because they are often found in the same location. We will use this same terminology in this book.

The first thing that will probably come into your mind when you think about products that could be made out of all that petroleum is probably fuel. However, there are numerous other materials and products that contain oil or gas, e.g. toothpaste, candles, medicines, or even computers. This also explains why currently petroleum is of utmost importance to our lives today.

Historically, petroleum contracts were designed with crude oil in mind, and this continues to dominate the logic and structure of contracts today. Gas has only recently also become a valuable resource. As the old industry saying went: "What is worse than not finding oil? Finding gas!" This is not true any more, as gas becomes increasingly marketable. But not all contracts around the world have, as yet, caught up to this reality.

Natural gas, or just gas, is usually classified within contracts as either **non-associated gas** and **associated gas**. Non-associated gas refers to gas reservoirs that contain only gas and no oil, whereas associated gas is found together with crude oil. The implications of these can be far reaching and will affect environmental, social, political, fiscal and technological considerations. Countries with significant gas deposits will typically address these considerations in far greater details in their contracts than countries with primarily crude oil reserves.

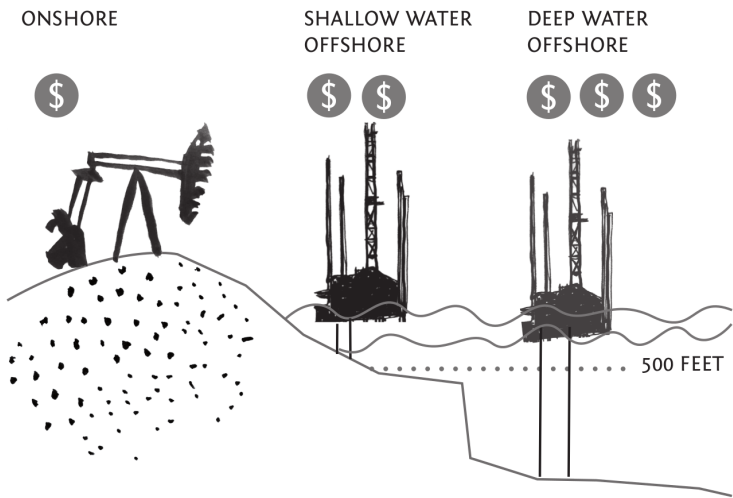
Example: In 2011, 88 million barrels of oil were produced per day worldwide; one barrel is roughly 160 litres or about 44 US gallons. 317 billion cubic feet (bcf) of natural gas was produced daily.

Offshore & Onshore Operations

Petroleum operations can be either onshore or offshore. Some countries have separate contracts for onshore and offshore, whereas others treat them differently within the contract. In what might be one of the most straightforward terms used in this book, onshore operations refer to operations taking place on land, while offshore, or subsea, operations take place in the sea and through the seabed.

The following diagram shows the three types of petroleum extraction and their comparative costs.

figure 2: Comparative cost of petroleum production



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Offshore operations are more expensive than offshore operations because of the type of facilities and structures required. Deep-water drilling is much more expensive than shallow-water drilling because the platforms are technically more difficult to construct. These considerations are addressed in contracts by providing financial incentives (e.g. tax reductions) for those operations and stages of production that are more challenging, risky and costly to the contractor.



At the time of writing, in late 2012, trends were emerging to show that the rising price of oil has made it profitable for companies to invest increasingly in deep-sea operations. Declining revenue from shallow-water and onshore sources, as well as technical advances, have made deep waters more attractive, despite their cost.

Conventional Vs Unconventional

Flipping through the newspapers, you read about protesters upset about "unconventional" oil being developed on pristine farm land. Or France is considering banning it. But what is unconventional oil? For that matter, what is conventional oil? The distinction between conventional and unconventional operations refers to the manner, ease and cost associated with extracting the petroleum.

Conventional oil extraction employs traditional oil wells, and unconventional, the new and emerging technologies and methodologies allowing access to more inaccessible reserves, such as those found in oil shale and oil sands.

Conventional gas is typically free gas trapped in rock formations and is easier to extract. Unconventional gas reservoirs include tight gas, coal bed methane, gas hydrates, and shale gas (which sits in sand beds). Drilling for unconventional gas can be more expensive compared to conventional gas. The supply of and interest in gas extracted from unconventional reservoirs is growing rapidly, mainly due to technological advances.

....but as of the writing of this book, most contracts do not provide for the unique attributes of unconventional gas.

The Price Of Petroleum

The price of petroleum is another headline grabber. We all know it is out there, but we probably do not stop to think about the details too terribly often.

What does "Oil is at \$100 a barrel mean"? All oil? Some oil? The answer to this is, "some oil".

Petroleum is being bought and sold at many different prices all over the world though they tend to be compared or "benchmarked" off certain common standards.

- For Oil, West Texas Intermediate (WTI) or Brent crudes or blends and commonly used.
- For Gas, Henry Hubb is common.

These benchmarks, which are the prices that make the headlines, are used to determine the price of oil and gas produced elsewhere. This will be discussed in

more detail later in the "Valuing Oil" chapter.

Future Pricing

A critical and heavily debated question is: what will the future price of petroleum be? Unfortunately, there is no single or easy answer to this question. What drives oil prices is a subject of much debate about; global oil consumption, economic growth patterns, technological innovation, and political dynamics in oil producing countries. This is not the subject of this book, however, and will be something we'll leave to the experts.



The uncertainty that surrounds the future price of oil is something both contractors and countries are acutely aware of. They try to account for it in both financial systems and petroleum contracts so that stakeholders may profit from favourable market conditions and also be protected where those conditions change.

Future Trends In Contracts

The price of oil has, historically, driven fundamental shifts in the oil business and the contracts that underpin it. In late 1960s and 1970s, the famous first wave of nationalisation of natural resources led to the creation of a new form of contract - **the Production Sharing Contract**.

Nowadays, with the price of oil being high, there is an increasing movement of people in resource-rich countries wanting visual proof that their natural resources are directly benefiting them. From their position as citizens of the country and therefore as co-owners of the resource, there is a call for re-negotiation of contracts and the formation of new contracts that address this.

What does all of this mean for oil contracts, the subject of this book?

Who knows, is the short answer. It would seem to suggest that the search for petroleum will continue, at least in the short term, with developing extraction technologies. Maybe this will produce a flurry of new oil contracts between companies and governments that address these new methods of extraction. But they might not.

The oldest contracts, from the days of Edwin Drake in Pennsylvania back in 1859, did not look terribly different, at the most fundamental level, than many of the contracts today. Is it time to race forward? Keep what we have got? A combination of the two?

We do not claim to know and it probably depends on who you're asking, but we do hope that this book enables you to engage in such a discussion and ask questions

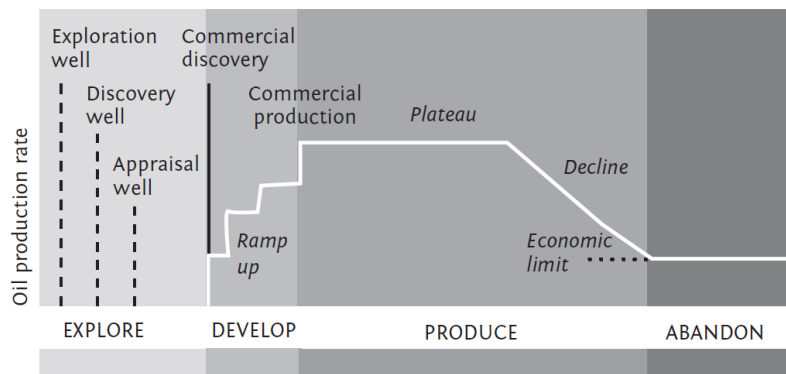
that could lead you to an answer. The contracts and laws in the petroleum sector are often reformed for various policy reasons and this book is designed to help the reader actively engage in this process.

THE LIFE & TIMES OF A PETROLEUM PROJECT

Petroleum doesn't last forever. It is a non-renewable resource. This fundamentally drives the business decisions of companies, a key part of which is that most petroleum contracts are structured to contemplate the entire life span of a project, it's beginning, middle, and end. The key stages of a project's life (or "petroleum operations") are:

- **explore** to find it in the first place;
- **develop** the infrastructure to get it out;
- **produce** (and sell) the petroleum you've found;
- **abandon** when it runs out and clean up ("decommission")

Each of these stages is broken down and discussed in detail below.



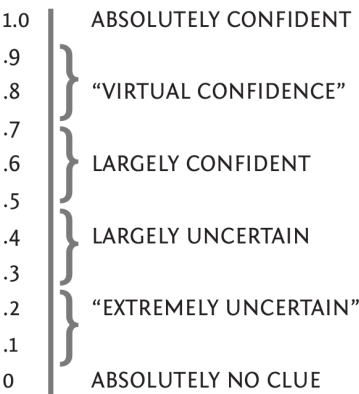
Example of an oil project timeline

Explore

Petroleum is rarely found on the surface of the earth. One is very unlikely (though would be quite lucky) to step into a puddle of oil, though when this does occur it is known as a "seep" which means what one would think it means: oil below the ground has "crept up" from below the surface to "seep out" onto the surface. In the early years of oil discovery, seeps were probably one of the best means to find oil and gas. And oil still does seep to the surface of the earth in many locations across the globe. But a seep does not mean an oil boom. Nowadays, we use much more scientific and data-intensive means of finding petroleum beneath the surface of the earth.

Seismic

Today, geological surveying methods known as seismic studies (or just "seismic") are usually the starting point of any oil exploration effort. The essence of seismic studies are to use sound waves, shot down into the earth, to 'see' what is underground. Although it is often said that one cannot be certain that petroleum is in a given location until a exploration well is drilled, taking seismic surveys help increase one's confidence that drilling - an expensive endeavour - in a particular location is worthwhile. In other words, seismic helps climb the 'confidence scale'.



Seismic helps climb the confidence scale

Commonly found beneath the earth's surface are various types of rocks, water

and salt, all of which react differently when hit with a sound wave. Large amounts of data are captured from this process and used to give an image of what lies beneath the earth's surface.

As computer technology has improved, seismic has been able to handle increasingly large quantities and complexity of data, though the cost of gathering and interpreting this incurs increasing costs. This is why you will see in some contracts the type of seismic required (eg. 2D vs 3D), how many kilometers of seismic is to be gathered ("shot" in industry jargon) and specifically that it must be interpreted and the results provided to the host government.

EXCERPT FROM TIMOR-LESTE JPDA S-06-01:

4.1 - In each Contract Year mentioned below, the Contractors shall carry out an Exploration Work Programme and Budget of not less than the amount of work specified for that Contract Year:

Contact Year 1: Acquisition, processing and interpretation of 1150km 2D seismic data

Exploration Drilling

If the seismic produces promising results - sometimes called a "lead" - then the next phase of exploration will typically be drilling an exploration well. Here, an extraordinarily large drill bit is cut into the earth's surface in order to bring up a "core" or a cylindrical sample of that portion of the earth.

EXCERPT FROM GHANA PETROLEUM AGREEMENT WITH TULLOW, KOSMOS, AND SABRE MARCH 10, 2006:

"Exploration" or "Exploration Operations" means the search for Petroleum by geological, geophysical and other methods and the drilling of Exploration Well(s) and includes any activity in connection therewith or in preparation thereof and any relevant process and appraisal work, including technical and economic feasibility studies, that may be carried out to determine whether a Discovery of Petroleum constitutes a Commercial Discovery

Even with conducting seismic to help climb the confidence scale, one might need to drill several exploration wells to establish what is in fact below the earth's surface.

One commonly used comparison to exploration drilling (particularly in the deep offshore) is trying to stick an extremely long straw in a drinking bottle from the top of a skyscraper and then drink from it. Of course, there are many areas where hydrocarbons are known to exist, though they might not be evenly distributed. In these cases seismic is still needed to increase the chances of 'hitting the target'.

Because most of us use fuel in our cars which we see as a liquid, many of us envision petroleum to be in lake-like pools below the earth's surface. In fact, it is found in spaces or cracks within rock formations and needs various techniques to extract (relieve pressure, create pressure, etc). One might picture a glass with a lot of crushed ice and trying to drink a milkshake from it.

While there is no standard amount of time one might conduct seismic studies and drill exploration wells in the world, these studies and drilling and the interpretation of the results even on a very rapid schedule takes months at the very least and more often around 2-4 years.

Discover And Appraise

Let us assume that, lucky you, you found hydrocarbons while drilling; you have "discovered" petroleum! Is the pay day coming? Most likely, not quite yet. You may have "discovered" hydrocarbons, but the question then becomes, how much did you find? Enough to make it worthwhile, "commercially viable" or economical to develop and produce? What you will need to do next: "appraise" the discovery.

Appraising entails more drilling and seismic to assess what you have discovered, but to a greater degree of accuracy. It will lead to more detailed geological discovery while also involving assessment and reflection on how to build the necessary infrastructure to produce the petroleum you've found. You will want to know more about:

- the chemical composition of the various hydrocarbon deposits
- the quantity of reserves in the area
- how to get these hydrocarbons out of the ground (if the discovery is found to be of commercial significance)

EXCERPT FROM GHANA PETROLEUM AGREEMENT WITH TULLOW, KOSMOS, AND SABRE MARCH 10, 2006:

"Discovery" means finding during Exploration Operations an accumulation of Petroleum not previously known or proven to have existed, which is recovered or recoverable at the surface in a flow measurable by conventional petroleum industry testing methods;

"Appraisal Programme" means a programme carried out for the purposes of delineating the accumulation of Petroleum to which that Discovery relates in terms of thickness and lateral extent and estimating the quantity of recoverable Petroleum therein;

Commercial Discovery Or Not?

Once hydrocarbons have been found in sufficient quantities and with an economically viable extraction cost, the discovery becomes a "commercial discovery". It is important to stress here that a commercial discovery is not a geologic term but a business term. For this reason, the length of time an appraisal takes will likely depend on such considerations as:

- the business considerations of the company that has found the oil
- the local laws and regulations that determine the process of development

EXCERPT FROM TIMOR-LESTE JPDA S-06-01:

"Commercial Discovery means a discovery of Petroleum that a Contractor declares commercial as contemplated in Section 4.10;

Develop

Once you have explored, discovered and appraised a petroleum deposit and determined that it is worth the cost to get it out of the ground, the next stage is to develop infrastructure to extract it. Depending on a number of factors, including geology, location and local regulations, you will need to determine the best way to get your hydrocarbons out of the ground and to the market.

This can include decisions about how many wells to drill (yes, there can be more than one, there can be many!), what type of platform you will be building or whether to build a platform at all. Increasingly, offshore oil developments are using

boat-like structures to extract petroleum, the Floating Production, Storage and Offloading units or "FPSOs" in short, or different varieties (eg. FPOs, or FPS's) which do only some of these functions.

The development phase is rarely less than several years. Engineering, community and business considerations, among others, all factor into the type and scale of infrastructure that will be used to extract the petroleum. This is the phase which requires the most amount of money in the life cycle (the most "capital intensive"). While exploration well drilling in the offshore might get into the hundreds of millions of dollars, complex, large-scale difficult environments for the extraction of petroleum can hit tens of billions!

Produce

At long last - perhaps a decade after the start of exploration - oil or gas will finally flow. As various wells come 'online', petroleum will flow in increasing quantities as production "ramps up". At some point, once most of the first major development has been completed, tested, and refined for any bugs in the system, there will be "commercial production". This occurs when the petroleum is finally flowing at the expected rate over a period of a month or so. How long will production last? This is affected by many factors, but probably most significantly by the size of the find.

EXCERPT FROM GHANA PETROLEUM AGREEMENT WITH TULLOW, KOSMOS, AND SABRE MARCH 10, 2006:

"Date of Commencement of Commercial Production" means in respect of each Development and Production Area, the date on which production of petroleum under a programme of regular production, lifting and sale commences;

EXCERPT FROM TIMOR-LESTE JPDA S-06-01:

"Commercial Production" occurs on the first day of the first period of thirty (30) consecutive days during which production is not less than the level of regular production delivered for sale determined by the Ministry as part of the approval of, or amendment to, a Development Plan, averaged over no less than twenty-five (25) days in the period;

Abandon

After anywhere from around seven years of production from smaller areas to fifty years or more from the giants, it is time to take all of the "steel and metal" down, plug the production wells and restore the environment to its original state. A common alternative to this is where the contractor turns the assets over to the state so that it can then continue operations and eventually abandoning themselves at a later time. These processes are generally referred to as "Decommissioning" or "Abandonment".

EXCERPT FROM TIMOR-LESTE JPDA S-06-01:

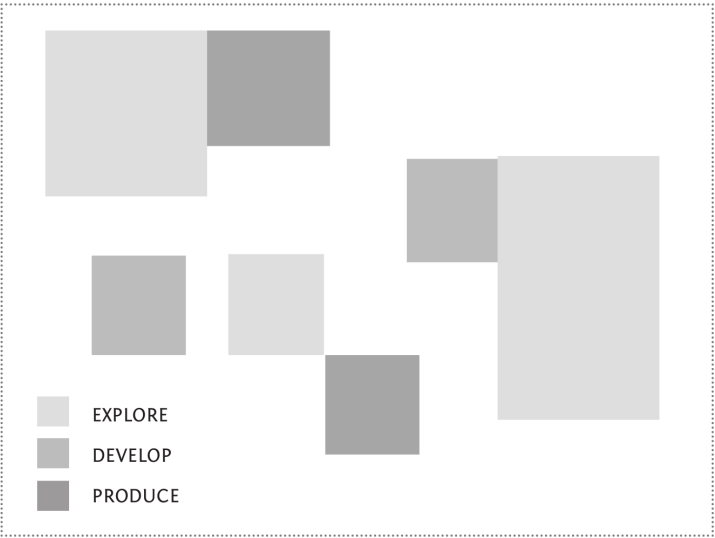
"Decommission" means, in respect of the Contract Area or part of it, as the case may be, to abandon, decommission, transfer, remove and/or dispose of structures, facilities, installations, equipment and other property, and other works, used in Petroleum Operations in the area, to clean up the area and make it good and safe, and to protect the environment

It is important to note that significant amounts of petroleum will likely remain in the ground at this point. This may be because the financial system in place in the country makes continued production uneconomic and/or technologically there does not continue to be cost-effective means of producing petroleum. The environmental issues related to abandonment are discussed in the section: Environmental, Social and Health & Safety Issues, while project economics and their impact on production are discussed in the section: 'The Money'.

Other factors that may cause a contractor to halt or even indefinitely cease operations, may not, however, trigger the contractual obligation to decommission. These could include security concerns, social unrest or political instability. These 'force majeure' events would not terminate the contract, but could suspend the contractors obligation until operations were able to resume.



In a number of countries, a contract, license or concession may cover several fields simultaneously. This means that, multiple areas, each at their own respective stage may be active under one contract, as shown in the diagram below.



Stages of petroleum activity in a contract area

WHAT IS A PETROLEUM CONTRACT?

Experts estimate that for a large natural resource extraction project, there will be well over 100 contracts to build, operate, and finance it - all of which could fall under the broad category of 'petroleum contract'. There may also be well over a 100 parties involved, including:

- governments and their national oil companies (NOCs), e.g. Gazprom, Petronas
- international oil companies (IOCs), e.g. BP, Exxon, Chevron, CNOOC
- private banks and public lenders, e.g. JP Morgan, World Bank
- engineering firms, drilling companies & rig operators, e.g. Halliburton, Schlumberger, Technip
- transportation, refining and trading companies, e.g. Hess, Glencore, Trafigura, Koch Industries

...and many more

Among these many contracts, the most important is the one between the government and the IOC and it is this contract that will be addressed in this book. All of the other contracts must be consistent with and depend on this contract; these might be collectively referred to as "subsidiary", "auxiliary" or "ancillary" contracts.

This contract is most commonly referred to by the industry as a "**Host Government Contract**" because it is a contract between a government (on behalf of the nation and its people) and an oil company or companies (that are being hosted). It is through this contract that the host government legally grants rights to oil companies to conduct "petroleum operations". This contract appears in countries throughout the world under many names:

- Petroleum Contract
- Exploration & Production Agreement (E&P)
- Exploration & Exploitation Contract
- Concession
- License Agreement
- Petroleum Sharing Agreement (PSA)
- Production Sharing Contract (PSA)



In this book, we will, from now on, use the term "petroleum contract" to refer solely to the Host Government Contract. Other terms will be defined as we go and all are listed in the Glossary for further reference.

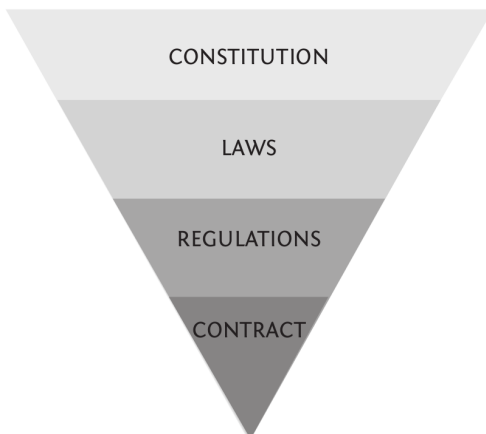
A small minority of countries will not, however, follow this approach to petroleum extraction. They may, instead, manage most of extraction process themselves, therefore removing the need to partner with an IOC and the need for the Host Government Contract. Examples include Saudi Arabia's National Oil Company Saudi Aramco and Mexico's Pemex.

The Petroleum Regime

You now have a petroleum contract in your hands. Do you have everything you need to understand the relationship between the government and the contractors by just reading through the contract? No.

We'll say it once and it will surely be said again: petroleum contracts are one key feature, living in a constellation or web of other laws and regulations above it and many other subcontracts and other ancillary contracts are below it. These will be referred to by the contract but will not be explicitly described, explained or re-written.

This web of laws and regulations relating to petroleum within a particular country is known as a "petroleum regime". The petroleum regime can be best thought of as a hierarchy, starting with the constitution of the relevant country and ending with petroleum contract.



Applicability of law: from all to one

Constitution

The constitution will establish the authority for a government to make and enforce laws. It may also address the ownership of the country's natural resources and, in this case, will typically state that resources are owned by citizens of the nation, or held for their benefit by the current government.

Laws And Regulations

Then comes the petroleum law, which contains specific rules relating to the rights and responsibilities granted in the contract. Other laws will also form an important part of the "petroleum regime" including, for example, environmental laws, health and safety laws, tax laws and labour laws.

EXCERPT FROM GHANA MODEL PETROLEUM AGREEMENT:

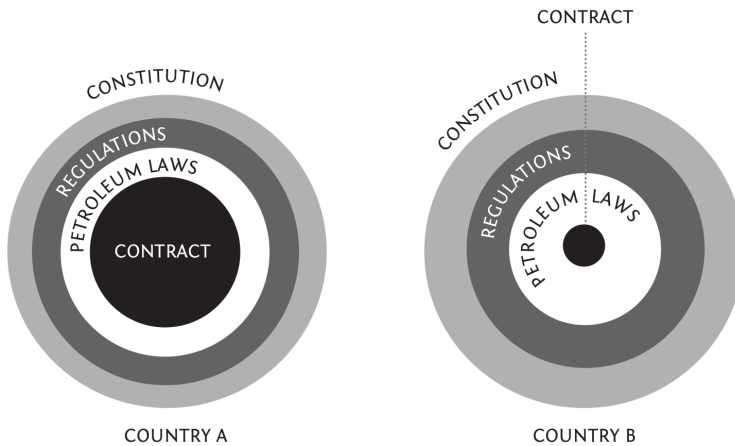
10.2 - The chargeable income of Contractor is determined under section 2 of the Petroleum Income Tax Law

Next, there may be petroleum regulations, which are made in accordance with the petroleum law. As we move down the hierarchy from the constitution, to laws, to petroleum regulations, the rules relating to petroleum exploitation will become increasingly detailed and specific.

Contracts

So, the petroleum contract is simply one part of the overall petroleum regime that governs petroleum resources. It is, however, the part that defines the particularities and rights that are essential to any company wanting to explore and extract within that country.

It is also worth noting that the contract can 'sit' in different places in different countries petroleum regimes. For example, in Country A it could contain a great deal of detail or even be a law in itself, whereas in Country B it could be heavily supported by already existing laws, regulations, and the constitution of the country.



Different petroleum regimes

Awarding Petroleum Contracts

There are two main systems for awarding or winning contracts:

Competitive Bid: Given the value of petroleum today, many countries award contracts by holding a 'bid round'. Here, companies compete against each other by offering the best terms with regards to one or more defined variables to win the contract.

Ad hoc negotiations: Here an investor comes unsolicited and asks for a particular parcel of land and then negotiates a contract directly.

First-come, first-served: Alternatively, there might be an application system and the first company that applies and passes whatever regulatory hurdles the state may have, is then awarded the contract - with some negotiations over the terms of the contract usually involved.

The system for awarding contracts in a country (or different areas within that country) may depend on the current state of its petroleum sector. For example; Is there geological data already available? Is it a known petroleum producing area? Is there infrastructure already in place that could be used for this specific block? Hard to reach area?

Example: Peru's legal framework, allows for competitive bidding and Ad hoc. Although the country generally favors competitive bid rounds, if a contractor approaches with an interest in an area not currently under consideration, the country may choose to negotiate terms and award a contract directly.

Negotiations

A country is likely to have a model petroleum contract, in a standard format and with standard clauses that can be any of the types of Host Government Contracts listed in the next section. The extent to which the parties will negotiate or change these clauses and terms will depend upon such issues as the country's petroleum law, market environment, and current political situation. Through the negotiating process, the terms may be negotiated significantly from what was in the original model, or it may be only the numbers of one fiscal term on which the companies were bidding, such as a signature bonus that is filled in.

Following negotiations, what was a government model contract will become a signed contract with a particular company or several companies. With the signing of the contract, the company or companies are legally awarded the exclusive right to explore and produce oil in the contract area.

Types Of Petroleum Contracts

Of these Host Government Contracts, there are three principal types which can be generally characterised as:

- **Concession:** contractor owns the oil in the ground
- **Production Sharing Contract:** contractor owns a share of oil once it is out the ground
- **Service Contract:** contractor receives a fee for getting the oil

Concessions

Concessions are the "original" or oldest form of petroleum contract. First developed during the oil boom in the United States in the 1800s, the idea was then exported to oil producing countries around the world by International Oil Companies (IOC). These contracts are based much more on a "land ownership" concept of oil that is based on the American system of land ownership. In the United States, the landowner, generally speaking, has legal ownership rights of the earth directly below it (sub-surface) and the sky above it.

This would include oil if it was found below a private property owners land. Due to this historical origin, the concession similarly grants an area of land to a

company, though typically only the sub-surface rights to the land, and therefore, if that company finds oil below the surface, the company owns that oil. Under the concession the contractor will also have the exclusive right to explore within the concession area.

How then, you may ask, does a country benefit from this form of contract? This usually occurs through taxes and royalties, though a state may also hold shares in the concession through its NOC in a Joint Venture with the contractor.

PSCs And Service Contracts

Production Sharing Contracts, or PSCs, and Service Contracts are different from concessions, in that they do not give an ownership right to oil in the ground. This also means that the state, being the owner of the resource in the ground, must contract a company to explore on its behalf.

Indonesia can be credited with the innovation of Production Sharing Contracts in 1966. The Indonesian government decided, as a 'nationalistic' move, to move away from concessioning to contracting. This was done so that the state retained ownership of the petroleum produced and only gave the international company the right to explore and take ownership (or legally speaking "title") to it once the petroleum was out of the ground.

This innovation came about at the same time as many petroleum producing countries were gaining their independence and was part of the first wave of the so-called resource nationalism. Another key development during this time was the formation of OPEC (Organisation of Petroleum Exporting Countries) that led to further "re-balancing" of government-company relationships.

Under a Service Contract, title does not transfer at all. Unlike a PSC where the oil company is entitled to a share of any petroleum produced, under a Service Contract the oil company is just paid a fee.

Joint Ventures And Other Combinations

Another type of arrangement that is sometimes considered to be a fourth type of petroleum contract is the **Joint Venture**. This involves the state, through a national oil company, entering a partnership and working together with an oil company or companies. In this arrangement, it is the joint venture itself that is awarded rights to explore, develop, produce and sell petroleum.

In reality it is rare to find any contract that fits entirely into one of the descriptions given above and is more likely to take elements from each.

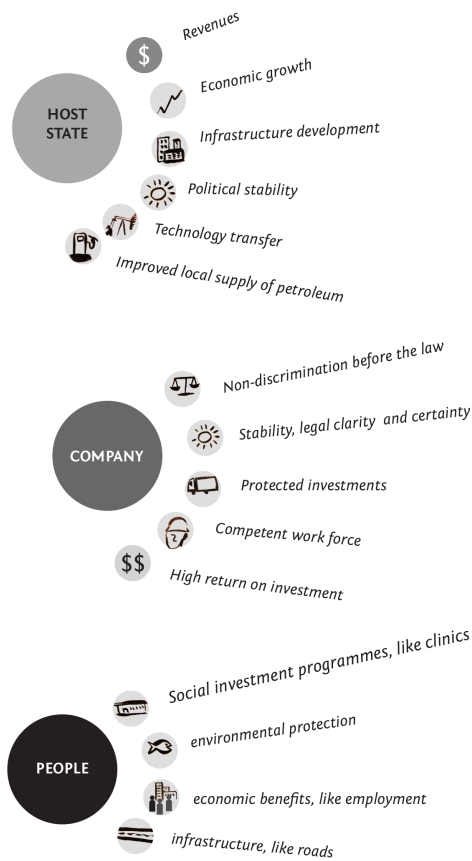
Accessing Contracts From The Outside

The creation and execution of the petroleum laws, model contracts, and especially the negotiation of a signed or executed contract, all are primarily driven by the executive branch of government. This will typically be the Ministry running the petroleum sector and perhaps some other ministries with relevant expertise such as the Ministry of Finance.

Those outside of this 'inner circle', even in other government departments, have historically found petroleum contracts shrouded in secrecy. As a result, the people that are interested, influenced, and affected by these industries, whether in producing or consuming countries often feel left out, in the dark, wondering where the money went or where the oil comes from and on what terms. And while a country's constitution is public (we hope!) and the laws are too (if sometimes hard to find), petroleum contracts are likely to be not easily accessible even if by law they should be.

The range of potential stakeholders is huge, and their concerns too numerous to list them here. While the majority of oil contracts today speak primarily about the financial and technical aspects of oil extraction, they are increasingly addressing concerns of stakeholders that are not directly parties to the contract but are deeply affected by it. This is further addressed in the section Economic development.

Our great hope is that the rest of the book, which is devoted to the content of petroleum contracts, will help to empower people to read and understand these multi-billion dollar contracts that fuel our world.



OUR FAMILY OF CONTRACTS

We have selected a "bouquet" of petroleum contracts that are in the public domain to use for illustration purposes throughout the rest of the book. It's time to meet them!



AFGHANISTAN

Type of Agreement: Production Sharing Contract

Form of agreement: Signed with CNPC, 2011.

The Amu Darya agreement is Afghanistan's first foray into modern petroleum contracts. Signed in 2011 with the China National Petroleum Corporation, no oil has yet been produced out of this contract. But because of the country's political status the contract received intensive attention from international advisors and development consultants.



AZERBAIJAN

Type of Agreement: Production Sharing Contract

Form of agreement: Signed with a consortium of 10 companies headed by BP.

This contract signed in 1994 still governs the largest of Azerbaijan's producing fields and was instrumental in the renewal of production in the country after the collapse of the Soviet Union. Some aspects have aroused controversy in recent years but the government has chosen not to renegotiate to create a sense of business confidence.



BRAZIL

Type of agreement: Concession

Form of agreement: Model (2001)

In the 1990s, Brazil switched from a joint venture structure to a concession. They created a Concession agreement that addressed the issues of both state and investor, and significant activity and success has occurred off the back of it, both onshore and offshore, with Brazil now talking of joining OPEC one day.



GHANA

Type of agreement: Production Sharing Contract

Form of agreement: Signed, with Tullow, Sabre and Kosmo

Ghana is facing all the issues of an emerging petroleum state following the Jubilee discovery in its offshore. It utilizes a Petroleum Agreement that is a joint venture between the investor and the Ghana National Petroleum Corporation, and the state. Ghana is already busy changing its model for future agreements, an example of how fast governments are now progressing up the negotiating curve. This agreement is in force and governs Jubilee, the country's major producing field.



INDONESIA:

Type of agreement: Production Sharing Contract

Form of agreement: Model (1998)

The production sharing form of contract was first developed in Indonesia, and is still used there, although it has evolved significantly from its first use in the 1960s. Indonesia is a long-time oil producing country and has created used many versions of the production sharing contract.



IRAQ

Type of agreement: Service agreement or risk service contract

Form of agreement: Model (2009)

Iraq's Technical Service Contract has been used since 2009 to award some super-giant Iraqi oilfields. Production is already occurring from this contract form, and if all the contractual commitments are fulfilled, Iraq could be producing 6 to 10 million barrels per day by 2017 under this form. Iraq also attained a very high level of government take under these contracts. There are only a few states with active service agreements, and Iraq's form is definitely the best for the purposes of our review. The ministry of oil and the companies are known to have signed final versions after sometimes quite lengthy negotiations so there is the possibility that the final versions are different in some respects to this model.



LIBYA

Type of agreement: Production Sharing Contract

Form of agreement: Model (2005)

Libya's Exploration and Production Sharing Contract version IV, also known as "EPSA IV" has been used in a series of bid rounds since 2005. It is a modern PSC with National Oil Company of Libya as a 50% participant. Libya EPSA IV terms have attained the world's highest level of 'government take' for the state under a contract that includes an exploration phase. In the last versions the split of profit oil was 92% to the government and 8% to the company.



TIMOR-LESTE

Type of Agreement: Production Sharing Contract

Form of agreement: Signed

This contract governs the currently producing Bayu-Undan field in the Joint Development Area that Timor-Leste shares with Australia. The current operator is ConocoPhillips though contract was originally signed with eni. It is a relatively short contract compared to PSCs from the former soviet states like Kazakhstan and Azerbaijan. One of its more unique aspects of this contract is that, because it is in a Joint Development Area, it is governed by International treaties between Australia and Timor-Leste.

THE ANATOMY OF PETROLEUM CONTRACTS

Generally speaking, contracts tend to follow the order in which things would happen in a petroleum project. After the introductions, such as the list of terms to be used in the document, they move onto exploration, followed by development and appraisal. Up until this point there is no "pie" to divide up, and so the clauses deal with operational management issues. Once commercial production begins, fiscal terms follow in the contract as in real life. After that come issues such as local content, dispute resolution and confidentiality, and other issues which may be more specific to each contract.

In the very back of the contract, it is common to see the **Accounting Procedures** for calculating cost oil in the annexes of a contract and various model forms of the ancillary contracts, like a **Parent Company Guarantee** or the **Joint Operating Agreement**. These are referred to as "Annexes", "Appendices" or "Addenda" which are all additional documents that are referred to in the contract but for some reason or another, the parties thought the contract would flow better with it as a separate document or the need for the document came after the parties had agreed to the contract.

To get a sense of how generic these contracts can be, let's look at the eight contracts that make up the "family of contracts" we quote from in this book. The table below shows the article numbers dealing with various early stages in the life-cycle of the project and the total number of articles in the main section of the agreement. Iraq doesn't have any clauses relating to exploration because they are dealing with sizable discovered fields.

	DEFINITIONS	EXPLORATION	OPERATIONS	FISCAL	NO. OF ARTICLES
Afghanistan	1	3	5-7	10-13	36
Azerbaijan		4	5-9	11-13	31
Brazil	1	3-5	9-10	11	35
Ghana	1	3-4	6-9	10-13	27
Indonesia	1	3-4	5-6	7-9	17
Iraq	1		6-7,9-16	17-21	43
Libya	1	3	4-9	12,14	27
Timor Leste	1	3	4-6	7-11	22

Chasing Issues From Clause To Clause

But, although there is a certain logical sequence to the contracts, you can often end up chasing a particular issue around the contract, being referred backwards or forwards from one clause to another. If you have a particular question you want to get the answer to, it can feel sometimes like you're playing a game of Snakes and Ladders (or for US readers, Chutes and Ladders!).

Definitions And Block Capitals

Although it seems even more inaccessible than many other parts of the contract, it is often a good idea to get comfortable with Article 1, the list of definitions. This does the legal job of specifying what terms in use throughout the contract actually mean. It can save a lot of time, for example, to realise that the term "Effective Date" in the Indonesian contracts has a specific meaning as defined below:

EXCERPT FROM INDONESIAN MODEL CONTRACT

1.2.10 - Effective Date means the date of approval of this Contract by the Government of the Republic of Indonesia in accordance with the provisions of the applicable law.

It also helps to know then that this term is now an approved or reserved term which will appear either in capitals ("Effective Date") or sometimes block capitals ("EFFECTIVE DATE") throughout the contract.

Getting Answers From Contracts: Let The Chase Begin!

Let's say you want to know how long the Iraqi Service Agreement lasts. When does it start and when will it finish? Is it a 10, 15 or 50 year contract? One might think this would be a very straightforward clause in a contract: "This contract lasts 25 years." It is rarely that simple unfortunately. You have been warned.

To answer any question, you'll want to start at the table of contents (hope that there is one, they are your best friend - otherwise, the chase has just become that much more difficult) and see which heading would seem likely to answer your question. In our case, "Term of Contract" (Article 3) seems the most promising. Flipping to Article 3, we find the following:

EXCERPT FROM IRAQI SERVICE AGREEMENT

3.1 This Contract shall come into force on the Effective Date.

3.2 The basic term of this Contract ("Term") shall be twenty (20) Years from the Effective Date. This term is extendable pursuant to Article 21 or elsewhere in this Contract.

3.3 No later than one (1) Year prior to this Contract's expiry date, Contractor may submit written request to ROC for an extension of the Term for a maximum period of five (5) Years, subject to newly negotiated terms and conditions.

One part of our question is quite easy: the term of the contract is 20 years.

But when does it start? 3.1 says "on the Effective Date". Because the term is capitalized, we have to go to the definitions and see what it says.

EXCERPT FROM IRAQI SERVICE AGREEMENT

Definitions section - Effective Date means the date on which all the conditions listed in Article 39 are satisfied.

This definition shoots us to Article 39:

EXCERPT FROM IRAQI SERVICE AGREEMENT

39 - This Contract shall enter into force upon (i) it being signed by the Parties, (ii) the Initial Production Rate being agreed on the Parties and (iii) ROC notifying and representing to the Contractor in writing that the ratification has occurred and the Contract is enforceable in accordance with the Law.

Not a very straightforward answer, but an answer nonetheless. Upon these "trigger events" (whenever those may occur) that point will be when the contract will last for 20 years.

Except for the exceptions.

Article 3.2 tells us that the term is extendable pursuant to Article 31. You'll want to flip back to the table of contents to see what this article covers, which is "Force

Majeure" which, in summary, is a concept found in many contracts (not just petroleum) that allows the suspension of a contract while so-called unforeseen events or "Acts of God", like hurricanes or acts of war, allow the contract to be suspended until the event has been resolved. So, this is one way in which the contract might be extended.

But the last phrase of 3.2, "or elsewhere in this Contract" is where things get really ugly: this clause literally shoots you to the entire contract to hunt and see where else the contract might be extended. Depending on just how precise you need to be with your answer, your task may have just gotten a good bit longer.

If you're staying fairly general, 3.3 tells you that there could be a 5 year extension if the contractor requests it from the **Regional Oil Company (ROC)**, which you would need to go to the definitions to find out what this is.

EXCERPT FROM IRAQI SERVICE AGREEMENT

Definitions section - "----" or "ROC" means an Iraqi State oil company operating the Field prior to the Effective Date.

We have our general answer. The contractor will need to go to the state to get five more years for a possible total of 25 years.

So in order to understand this short article, we have now been referred to at least four other locations in the document for a fairly general answer and we would need to review the entire document for a specific answer!

This is quite normal. Petroleum contracts are interwoven in this way. You could spend quite a long time following the trail of an issue from one clause to another related clause and it is only with the passage of time that you begin to develop a sense of when it makes sense, for your immediate purpose, to follow the trail and when it is time to stop.

They're Not Perfect

Lastly, although it might be surprising in documents which have been pored over for months and sometimes years by dozens of people, there are sometimes glitches.

Example: The version of Ghana's agreement with Tullow, which is countersigned by both parties, goes straight from Article 23 to Article 25 in the Table of Contents.

Example: Brazil's concession agreement confuses "national" with "natural" in the table of contents, summarising the contents of Clause Eleven as "Supply to Natural Market". This may reflect the fact that the English is a translation and that Brazil

specifies the official language of contracts as Portuguese. These complex negotiations are often happening through a language barrier, which can give rise to errors in translation.

Finally, even if you are only interested in one agreement, it is worth spending the time to read several others to begin to get a sense for what is common in petroleum contracts and what might be of more specific interest in the one you are looking at. The extra confidence and understanding you gain will more than repay the time and effort.



All eight contracts widely quoted in this book are available on the Internet, along with many others. Good news - you no longer need to subscribe to expensive legal databases to begin to get a sense for how contracts are built.

THE ACTORS & THE SCRIPT



THE STARS OF THE SHOW

If the petroleum contract is the script, the stars of the show are those entities that sign the contract and agree to be bound by its term and conditions. They are what we call the "parties" to the contract. The parties are usually the **host government**, line ministry or its state/ national oil company (NOC) on the one hand, and an international oil company (IOC) or a group of IOCs, on the other. IOCs may be referred to as the contractor, the licensee or the concessionaire depending upon the type of the petroleum contract signed. Frequently more than one IOC is a party to the petroleum contract. Such group of IOCs is called a "consortium". Each of the companies are an individual party to the contract, but are treated as one entity and are collectively called the "**contractor**", the "**licensee**" or the "**concessionaire**". From the state's perspective, if the IOCs together fail to fulfill their obligations then they are all at fault. In legal language the IOCs are said to have "**joint and several liability**" for the performance of the contractor's obligations under the contract.

NOC's Multiple Roles

In addition to the NOC being party to the petroleum contract on behalf of the state, the script may require the NOC to play another role as well. The host country and the IOC may agree on some form of state participation in the project. In this event, the NOC will be a party to the petroleum contract as well as the representative of the state granting rights to the other parties. Sometimes an affiliate of the NOC is established for the purpose of representing the NOC in the direct operations of the project. Such state participation may be both one of the fiscal tools available to the state as discussed in the section: "The Money" and a means to promote broader national development goals as discussed in the section: "Economic Development".

Other Actors

An IOC will often participate in a petroleum contract through an affiliate company rather than the ultimate parent company for various reasons such as tax optimisation, project financing structuring, foreign investment protection regime structuring, or local law requirements. This makes the IOC the "parent" company. Such an affiliate will be incorporated in a different jurisdiction to the parent company or the country that is the party to the petroleum contract.

For example, BP PLC as the parent company sits at the top of the BP group of companies. BP PLC is the entity that people have in mind when BP is referred to in the media. BP's interests in various countries are held by affiliate companies such as BP Exploration Angola, BP Egypt Company, BP Energy Brazil and so on. These affiliate companies will be the parties to the petroleum contracts in the relevant

countries, not BP the parent company.

Often the only asset of this affiliate company is the field as determined in the petroleum contract to which it is a party. This exposes the country, and therefore the other parties to the contract, to a lot of risk. This is because there are no available financial resources on this company's balance sheet, only oil in the ground to cover any costs. In order to mitigate this risk the state will often require a company within the BP family and with more assets and financial strength (a "bigger balance sheet") to guarantee that the affiliate company will perform its obligations. If the affiliate fails to perform its financial obligations under the petroleum contract the state can require the parent company to step in to fulfill its affiliate's obligations.

The Plot - Sneak Preview

The chapter, "The Anatomy of Petroleum Contracts" sets out the main clauses contained in most petroleum contracts and the other chapters in this book talk in some detail about the the main rights and obligations of the parties. Petroleum contracts will often set out a provision that captures the fundamental grant of rights to the parties as well as the assumption of obligations by the parties. This provision provides the key grant of rights that underlies the entire performance of the contract. An example is given below:

EXCERPT FROM THE AZERBAIJAN AGREEMENT:

2.1 Grant of Exclusive Right. SOCAR hereby grants to Contractor the sole and exclusive right to conduct Petroleum Operations within and with respect to the Contract Area in accordance with the terms of this Contract and during the term hereof.

This grant of right is the main purpose of the petroleum contract. All other rights and obligations are subordinate to it. The clause gives the contractor the right to conduct the components of Petroleum Operations, which are: exploration, appraisal, development, extraction, production, stabilisation, treatment, stimulation, injection, gathering, storage, building rail or roads for loading facilities, building connecting entry point to rail network or to existing pipelines, handling, lifting, transporting petroleum to the delivery point and marketing of petroleum from, and abandonment operations with respect to a contract area.

This grant of rights may be mirrored by a similar statement of obligations. An example is given below:

EXCERPT FROM THE BRAZIL MODEL AGREEMENT:

13.1 - "During the effective period of this Agreement and according to its terms and conditions, the Concessionaire shall have, except as contemplated in paragraph 2.6, the exclusive right to perform the Operations in the Concession Area, for this purpose being obliged to, at its own account and risk, make all investments and bear all necessary expenses, to supply all necessary equipment, machines, personnel, service and proper technology and to assume and respond for losses and damages caused, directly or indirectly, by the Operations and their performance, regardless of pre-existing fault, before the ANP, the Federal Government and third-parties, according to paragraphs 2.2, 2.3 and other applicable provisions of this Agreement."

This clause sets out an obligation on the concessionaire to make investments, bear all costs, and provide all necessary equipments, personnel, technology required for the conducting of petroleum operations.

Contracts also include provisions on rights and obligations of host governments. After all, they are a party to the contract, too. An example showing the rights of the host government is shown below:

EXCERPT FROM THE TURKMENISTAN MODEL PRODUCTION SHARING AGREEMENT FOR PETROLEUM EXPLORATION AND PRODUCTION IN TURKMENISTAN OF 1997:

Article 7

- (a) full and complete access to the Contract Area and the right to inspect all assets, records and data owned or maintained by Contractor;
- (b) the right to receive and retain copies of all manuals and technical specifications, design documents, drawings, construction records, data, programs and reports;
- (c) the right to audit Contractor's accounts;
- (d) the right to receive share of Petroleum.

The same contract also puts a number of obligations on the host government, such as for them to grant all necessary permits and licenses for conducting petroleum operations and open bank accounts, provide entry and work permits for employees, provide permits for importing equipment and materials, provide access

to pipelines, prevent hindering of the conducting of operations, etc.

The contracts will lay out a decision making process that will be used throughout the life of the contract. This enables both the government and the contractor to fulfill their respective obligations. This is essentially a series of proposals (by the contractor) and approvals (by the state) as events unfold.

Three basic mechanisms are used:

- Yearly work programs
- Plans for the petroleum project phase
- Committees make decisions and the Operator carries them out

The chapters that follow explain all of these in much more detail. The next chapter describes the decisions to be made in each phase of the petroleum project. The next describes who does committee decision making process, and the last describes how the operator carries these out.

Shifts In Power And Nationalisation

It is worth noting, before we dive into the details, that this is a markedly different relationship between governments and contractors than it was a hundred years ago, and it is continuing to evolve. When the oil industry began, there were not provisions that allowed the state to share in the decision-making process in agreements. The international companies enjoyed almost complete operational control and made all decisions about how and when to explore, develop and produce oil under concession contracts.

But as states began to assert their right to ownership and control of their natural resources, contracts began to include clauses stipulating joint decision making processes. The contract governance issue is generally about how, by whom and what type of project decisions are made and the control tools the host governments or their NOCs have to supervise and check a proper implementation of the contract and have a vote in key operational and other project decisions.

This is a key theme that has come up a number of times in this book: contracts reflect changing times in the bargaining power and the desires of countries. These profoundly important and often deeply political issues of global magnitude manifest themselves in what might otherwise look like a mundane paperwork generating clause in a petroleum contract. In fact, these clauses are part of the fundamental re-shifting in the balance of power--or at least the attempt to. Some of these dynamics are described in the chapters that follow to help give context to these contract clauses.

Currently, there is tension between states wishing to assert their sovereignty over natural resources and companies wishing to maintain control over the operations.

The result, then, is that most contracts signed today represent a compromise. They specify joint management structures and procedures. From the state's point of view, one of the advantages of such joint decision-making mechanisms is to increase its management control over petroleum operations by the host government. From the company's view, this management control can decrease efficiency, increase costs and delay profits. But it can also facilitate better relationships with the state over time.

But just because a state has a NOC or has set up a joint management committee, a more robust and equal decision making process is not guaranteed. Countries without NOCs or management committees can exercise management control and have discussions with IOCs and be just as effective at shaping their petroleum sector by having the skills, knowledge and laws to effect these goals. This section does not deal with these systems in much detail since the focus is on what contracts do say, and many of them spend a good deal of their text on these issues.

THE ROLES THEY PLAY

What IOCs must do, when, where, how, and at what cost, constitute one of the fundamental areas in petroleum contracts. To address these issues, petroleum contracts include important clauses related to:

- the definition of an area where exploration and production will be conducted
- the surrendering of unused parts of such an area back to the government
- work and financial commitments during each phases of petroleum operations
- evaluation of a petroleum finding and development of the field
- annual work programmes and budgets
- data and reports to be provided to the government to inform it and facilitate it in the decision-making process
- ...and many more

Where: Contract (Concession) Area Or Block

The size and definition of the contract, or "**concession**", area for the potential exploration activity which a government makes available to oil companies is of crucial importance in many respects. One of the important reasons is that contractual rights, as granted to an oil company under the petroleum contract, are limited to the contract area. This means that whatever you agree upon in the contract, is only applicable in the contract area defined in the contract- nowhere else.

Another important reason is that the determination of size may affect the likelihood that the IOC will make a commercial discovery within the specified area. The smaller the size of the contract area, the higher the chance that it will be on the same geological oil field, or reservoir, as another contract area. This can lead to complications, as the two parties then have to work together, usually through creating a unitisation agreement, to extract the petroleum in the most efficient way.

Some countries use standard size of acreage in awarding contracts (e.g. US, UK, Norway, Brazil, etc.). Most of these countries usually use a gridding system based on geographical minutes. This system allows the contract (concession) area to be accurately defined by reference to coordinates as defined by the Greenwich Meridian Line. Unlike the countries with predetermined size of contract area/acreage, the size of the contract area is subject to negotiations and agreement in other countries. For instance, the Trinidad and Tobago Deep Onshore Model Production Sharing Contract of 2005 serves an example for the latter option. The clause 3 of the model contract ("Contract Area") stipulates the following general characteristics:

**EXCERPT FROM THE TRINIDAD AND TOBAGO DEEP ONSHORE MODEL
PRODUCTION SHARING CONTRACT OF 2005:**

"3.1 - The Contract Area as of the Effective Date of the Contract comprises a total area of approximately ----- (---,---) hectares, as described in Annex A attached hereto and delineated in the map which forms part thereof."

Under this clause, the size and map of the Contract Area is negotiated and agreed between the parties and attached to the contract. In addition to such clauses, the petroleum contracts tend to explicitly exclude the rights of oil companies to any other natural resources or aquatic resources in the contract area except for the right to explore, develop and produce hydrocarbons.

The size of the contract area may impact what happens in it. The larger the contract area is, the more likely there will be many activities going on it.

When: Overview

Petroleum contracts generally divide petroleum operations into three periods ; exploration, development and production phases through various clauses, such as, "Exploration Period, Development Period and Production Period" or variety of other languages. Typically, each of these phases have different legal, operational and commercial frameworks and as such, the various parties in the contract have to carry out different obligations at specified times throughout the project life cycle.

The first part, the exploration phase, is a bit unique. This is the one where the parties will specify in some detail the work programs to be carried out in each exploration year. This is because exploration activities are the only ones that can be planned and predicted to a certain degree of accuracy at the time of negotiating and signing the agreement- as mentioned earlier, at the point of signing the contract neither party can be sure that anything further than the initial exploration phase will actually happen.

In the diagram above, you will see that the most explanation is given for the exploration phase. That is because there is often more written about it than any other phase in the contract itself.

However, the yearly activities to be conducted later, such as phases of appraisal, development, production and abandonment will not be specifically planned, except at a very general level, in the contracts. Why? Because you do not know if you'll ever get past the exploration phase, but you're crossing your fingers all the same.

For the appraisal phase, questions such as; "What is the most efficient and sensible approach?" and "How many appraisal wells need to be drilled?" cannot be answered when the contract is signed since we do not yet know whether there will

be anything to appraise at all. Contract details concerning the development or later phases are even more speculative; the parties couldn't possibly know how many wells, platforms, and what type would be needed without knowing what is in the ground. But they do create processes for what they hope will result: oil production.

What Happens During The Exploration Period

Host governments have an interest in speeding up the rate of exploration and thorough and rapid exploration of the contract area and acreage. From this perspective, there may arise a difference of opinion between the government and IOCs. For example, a petroleum company, when acquiring exploration rights, aims to retain maximum freedom of action in rate and extent of exploration, and minimum of obligation in terms of incurring expenditures or carrying out exploration work. They are also interested in preserving greater freedom to determine its priorities among the areas in which it holds exploration rights in different parts of the world.

Due to these reasons, host countries create mechanisms to strike a proper balance between the interests of oil companies and the energy policy of the country. The mechanisms which host countries incorporate in agreements are designed to ensure that oil companies acquiring exploration rights are deterred from sitting on these areas. They want companies to diligently to carry out exploration, to incur the expenditures necessary for this purpose, and to relinquish areas progressively until the entire area would be relinquished if the agreed level of exploration activity was not maintained or if at the end of the stipulated exploration period no commercial discovery is made. These mechanisms include (but are not limited to) the following issues in the petroleum industry:

- Time limits for exploration
- Relinquishment requirements
- Minimum work and expenditure obligations
- Approval of annual exploration work programs and work program budgets
- Progressive area fees or rentals (discussed in the fiscal section of this book)
- Supervision of exploration work by the government or NOC.

The exploration period normally starts from the date when the contract become binding on the parties and continues for a number of years, for example, three or more years with the possibility of further extension for an additional period of 1 to 3 years. The length of the initial exploration period should depend on the size and nature of the contract area. The government should be careful to ensure that the length of the term should be sufficient to carry out an efficient and adequate exploration program, but not so long as to permit the contractor to be inactive.

Minimum Work Obligations In Exploration Phase

Governments generally seek to obtain specific minimum work commitments for each year of the initial exploration period, with detailed descriptions of the geological and geophysical work to be carried out in each year. In countries where there have been no previous discoveries and where the information available is limited, it can be quite difficult to obtain specific drilling commitments during the initial exploration period. In effect, seismic work during the initial exploration stage may constitute the only work commitments for oil companies. In these situations, the company will commit to a minimum geophysical and geological work program (as well as minimum financial commitments to carry out such work programs), except for drilling an exploration well before there is enough positive geological certainty about the field.

In countries with rich geological prospectivity and previous petroleum discoveries, the situation is different as far as the scope of work commitments in the exploration stage is concerned. The core of most work programmes is the obligation to "shoot", or record, a specific number of line kilometres of **seismic** and to drill exploration or wildcat wells. The determination of work programme or expenditure obligation is usually subject to intense negotiations as this phase constitutes major risks for oil companies before they have made a commercial discovery. The specification of these terms depends on the circumstances of a particular case and petroleum prospectivity of the country. The minimum exploration work program and expenditure and drilling obligations are key points in petroleum contracts since a failure in exploration terminates the contract for the oil company and it is not compensated for the reconnaissance, drilling and appraisal costs and hence such costs constitute a sunk cost. Typically, IOCs insist on lesser work program obligations and flexible expenditure obligations with "carry forward" provision.

The Equatorial Guinea Model Production Sharing Agreement may serve an example for the scope of work obligations to be carried out by the oil company at the exploration phase. Pursuant to Article 3 of this Anogla contract ("Exploration Work Obligations") shall do following minimum work program at its own risk and cost:

EXCERPT FROM THE EQUATORIAL GUINEA MODEL PRODUCTION SHARING AGREEMENT:

"(a) obtain... all existing 2D and 3D seismic data and Well data at a purchase price of [] Dollars (\$[]) and obtain from GESeis all existing 3D seismic and seabed logging data...and the Contractor shall undertake to interpret such information;

(b) reprocess [] kilometers of existing 2D seismic data and [] kilometers of 3D seismic data; and

(c) acquire [] kilometers of new 3D seismic data.

During the Second Exploration Sub-Period, the Contractor must drill a minimum of [] Exploration Well[s] to a minimum depth of [] meters below the seabed. The minimum expenditure for this period shall be [] Dollars (\$[])."

Under the outlined model, the contractor shall not only acquire and interpret certain seismic required to drill a number of exploration wells, but also invest the agreed amount of required financial commitments. Such financial commitments are usually equivalent in value to the estimated costs of the minimum work programs which are stipulated in the agreement for each year. In the event of the stipulation of the defined amount of financial commitment, the contractor must satisfy both the minimum work commitment and the minimum financial commitment for a particular year. Thus, if the minimum financial commitment has been met but the minimum work program has not been completed, the contractor must nevertheless complete that work program. Conversely, if the work program is completed but the financial commitment has not been fully expended, the contractor will be required to conduct additional exploration activities up to the balance of the financial commitment.

Relinquishment

One of the techniques for ensuring that the oil company carries out exploration expeditiously, and does not "lock up" the contract area, is to require mandatory relinquishment, meaning surrendering the unused part of the contract area or block back to the government. To encourage rapid and thorough exploration, petroleum agreements normally contain provisions for voluntary and mandatory relinquishment or surrender of acreage or contract area clauses such as "Relinquishment of the Contract Area". The aim of such a clause in petroleum contracts is to ensure that the IOC surrenders the unused parts of the contract area or block back to the government on a timely basis. The Indian Model Production Sharing Contract for Seventh Offer of Blocks as of 2007 serve an example for general relinquishment obligations under petroleum contracts (Article 4):

EXCERPT FROM THE INDIAN MODEL PRODUCTION SHARING CONTRACT FOR SEVENTH OFFER OF BLOCKS, 2007:

4 - "If at the end of the first Exploration Phase, the Contractor elects, pursuant to Article 3.4, to continue Exploration Operations in the Contract Area in the second Exploration Phase, the Contractor shall retain up to sixty per cent (60%) of the original Contract Area, including any Development and Discovery Area in not more than three (3) areas of simple geometrical shapes and relinquish the balance of the Contract Area prior to the commencement of the second Exploration Phase. Notwithstanding the provision of this Article 4.1, in the event the Development Areas and Discovery Areas exceed sixty per cent (60%) of the original Contract Area, the Contractor shall be entitled to retain the extent of Development Areas and Discovery Areas. At the end of the second Exploration Phase, the Contractor shall retain only Development Areas and Discovery Areas."

Such provisions prevent petroleum companies from locking up large contract areas which they do not use for exploration work.

In addition to mandatory relinquishment clauses, petroleum contracts may also include voluntary relinquishment mechanisms where the oil company can surrender a part of the contract area back to the government even though the contract does not require it to do so. Under voluntary mechanism, the contractor will usually have the opportunity to surrender voluntarily any or all of the area at any time subject only to fulfilling the work commitments and serving an advance notice to the government.

There is a considerable variation in relinquishment obligations in world petroleum contracts. The time periods for relinquishment should be viewed in the context of the size of the contract area, the overall length of the exploration period and the nature of the exploration area itself. Generally, such obligations are more strict in petroleum producing countries with proven reserves than in countries with a lower potential for oil production. The areas to be relinquished may constitute between 50% and 75% of the original contract area. Relinquishment is usually made in two or three steps, say, 25% every two years.

Discovery, Appraisal, Declaration Of Commerciality And Development

After finding a petroleum discovery by a petroleum company, an appraisal period will typically commence. This period allows the contractor to determine the commerciality of the discovery and to determine a development process if it thinks it will be worth producing. Petroleum contracts usually address this critical issue through "Decision of Commerciality", "Discovery", "Discovery, Development and Production", or similar clauses. While some major petroleum producing countries (e.g. China, Indonesia, Brazil etc.) require a say of the NOC in determining the commerciality of a petroleum finding, others leave this issue entirely to the discretion of petroleum companies (e.g. Azerbaijan, India, Tanzania).

Petroleum contracts usually provide that in the event of a petroleum finding petroleum company shall notify the ministry or NOC of such a discovery and its commerciality within a certain period of time. In addition, petroleum company has to submit all supporting information and data analysis. The Production Sharing Contract between The Government of the United Republic of Tanzania and the Tanzania Petroleum Development Corporation and ABC Oil Company as of 2004 provides for the following mechanism in the event where a discovery is made by the contractor:

EXCERPT FROM THE PRODUCTION SHARING CONTRACT BETWEEN THE GOVERNMENT OF THE UNITED REPUBLIC OF TANZANIA, ARTICLE 8: DISCOVERY AND DEVELOPMENT:

"(a) If Crude Oil is discovered in the Contract Area, Contractor will, within thirty days from the date on which evaluated test results relating to the discovery are submitted to TPDC, inform TPDC by notice in writing whether or not the discovery is in the opinion of Contractor of potential commercial interest.
(b) If Contractor informs TPDC that, in its opinion, utilizing good oilfield practice, the discovery is of eventual commercial interest and TPDC agrees with such determination, then the Minister shall be advised to agree to allow the Contractor to retain the Discovery Block for the duration of the Exploration Licence and any renewal thereof..."

After a discovery is found to be commercial by the petroleum company (the contractor) in the development stage, as in the case of exploration, the objectives of the oil company and host government regarding the timeline and the scale of investments needed to develop a field can differ. Host governments usually have an interest in rapid development of any field which is discovered. Given the limited duration of the contract, the oil company also has such an interest. However, if full freedom to decide whether to develop a particular discovery is left entirely to the oil company, there are potential risks that the petroleum company could decline to invest in development immediately because of its other priority projects in terms of its world-wide operations. Therefore, in order to mitigate such potential risk the contracts usually tend to put some time limit and other requirements (immediate supply of information to the government, formal approval, etc).

In the event the petroleum company declares a finding to be commercial, petroleum contracts usually provide that the petroleum company as contractor must prepare and submit for approval to the Ministry or Joint Management its plan for the development and production of petroleum from the contract area ("**Field Development Plan**" or "**Development and Production Plan**" or "**Exploitation Plan**"). This Plan is a long term plan for the efficient and prompt development and production of petroleum from the contract area. The Azerbaijani PSA may serve an example for such a mechanism. Under this PSA, the Contractor must prepare and submit to the Steering Committee for approval its plan for the development and production of petroleum from the contract area, within 30 days following completion of the minimum work programme, which must include the following components:

EXCERPT FROM THE THE AZERBAIJAN AGREEMENT, ARTICLE 4.4:

4.4 - (i) proposals relating to the spacing, drilling and completion of all wells, the production and storage installations, and transportation and delivery facilities required for the production, storage and transportation of petroleum; and
 (ii) proposals relating to necessary infrastructure investments and use of Azerbaijan materials, products and services ;
 (iii) a production forecast for formation fluids for the entire contract Area by reservoir derived from individual well forecasts and an estimate of the investment and expenses involved; and
 (iv) an environmental impact and health and safety assessment; and
 (v) an estimate of the time required to complete each phase of the development programme.

In light of the above clause, the Field Development Plan includes not only operational and infrastructure issues, but also local content and environmental and social issues which are hugely important for host governments.

In light of the importance of exploration and development for host governments, one of the important issues is the consequence if petroleum company fails to carry out the work commitments during the exploration and development. To counter such risks, petroleum contracts may stipulate that if this happens, except in the case of force majeure, the Ministry or NOC has the right to unilaterally terminate the contract, and the costs incurred during the exploration, development and bonuses are not recoverable.

If at the end of the initial exploration period (including any extension period) no commercial discovery has been made, the petroleum contract automatically terminates. As a rule, the development and production period begins from the date of the notice of discovery and its commerciality submitted by the oil company to the government or NOC and continues for a number of years, for example, 25-30 years. At the end of the contract, the IOCs transfer all petroleum operations and assets back to the host government or NOC, as the case may be. Petroleum contracts should make sure that there is enough security of tenure, meaning the oil company has automatic development and production rights once a commercial discovery is made at the exploration phase.

Annual Work Programs & Budgets

In addition to the longer range plans that occur during the appraisal and development phases, the contractor is typically obliged to submit a work plan for the activities it wants and thinks are necessary to conduct in the coming year. A government ministry or agency will then review and approve this plan. If the state does not approve, then it will have a set amount of time to modify, discuss, and come to an agreement with the contractor. These annual work programmes and budgets are one of the core parts of petroleum contracts because they give the state more of a role in the decision making process of what activities will be conducted each year.

Petroleum contracts call these **"Work Obligations"**, **"Exploration Work Obligations"**, **"Minimum Expected Exploration Work Commitment and Expected Minimum Exploration Expenditures"**, **"Production Period Work Programme"**, or **"Annual Work and "Budgets"** among others. Regardless of the difference of terminologies, such clauses define and regulate the core operational and financial issues, such as, the scope of works and financial commitments to be carried out by the IOC in a particular year during each phase of the petroleum contract, meaning exploration, development and production phases.

No matter what this document is called, it should describe, item by item, the petroleum operations to be carried out during a calendar year, for example, how many wells (appraisal, development and productions wells, as the case may be) will be drilled, pipelines, facilities to be constructed, procurement plans, etc. Contracts usually require the submission of work programmes to be accompanied with **Budgets**, meaning estimates of expenditures for carrying out in an annual work programme. The Angola Model Production Sharing Contract for Deep Water Blocks between SONANGOL and International Companies may serve an example for this particular case:

EXCERPT FROM THE ANGOLA MODEL PRODUCTION SHARING CONTRACT FOR DEEP WATER BLOCKS, ARTICLE 19 DEVELOPMENT AND PRODUCTION WORK PLANS AND BUDGETS:

19 - "1 .From the date of approval of the plan referred to in Article 18, and henceforth by fifteen (15) August of each Year (or by any other date which may be agreed) thereafter, Contractor Group shall prepare in accordance with professional rules and standards generally accepted in the international petroleum industry a draft annual Production Plan, a draft Exploration and Production Work Plan and Budget (if applicable) and a draft Development and Production Work Plan and Budget for the following Civil Year and may, from time to time, propose to Sonangol that it submit amendments to the approved Work Plans and Budgets to the consideration of the Ministry of Petroleum."

As will be fully discussed in the next chapters an annual work programmes and budgets will generally be approved by the joint management committee or the relevant ministry, as the case may be. A control on annual work programmes and budgets allows host governments to supervise the implementation of a general **Development Programme** and/or **Production Programme** and the costs associated with such works.

JOINT MANAGEMENT

We have established that a common mechanism to manage activities within the petroleum contract is to create a committee, with representatives from both state (government or National Oil Company) and the International Oil Companies (IOCs). This allows both sides, in theory, to have a say in decisions that need to be made - a happy compromise.

Different terms describing this concept include:

- Joint Management Committee - Iraq, Indonesia, Bangladesh, China, Ghana
- Steering Committee - Azerbaijan
- Technical Consultative Committee - Gabon

Despite the varying names, the general functions of such a committee remain similar around the world, and responsibilities assigned to them can be fairly broad, as illustrated below.

If you have been on a committee of any sort, you will have an idea of what the general nature of the committees used in the petroleum sector. You have meetings, take notes, approve the notes, then execute the decisions made at the meeting. There are procedures for holding emergency votes and meetings. Budgets are discussed and approved.

EXCERPT FROM THE IRAQI MODEL CONTRACT AS OF 2009:

13.1 The Parties shall establish, within thirty (30) days from the Effective Date, a joint management committee, referred to herein as the "Joint Management Committee" or "JMC", for the purpose of general supervision and control of Petroleum Operations.

13.2 The JMC shall have the following duties and authorities related to Petroleum Operations:

- (a) review and recommendation of Plans and any Revisions thereof;
- (b) review and approval of annual Work Programs, Budgets and production schedules, and any Revisions thereof;
- (c) review and approval of operating procedures;
- (d) review and/or approval of the award of sub-contracts and purchase orders;
- (e) approval of training programs and Iraqization plans for developing Iraqi personnel;
- (f) supervision and control of the implementation of approved Plans and Work Programs and the overall policy of Operator;
- (g) review and approval of manpower strength and organisation chart of Operator;
- (h) review of Quarterly statements, annual accounts and other financial statements;
- (i) review of periodical and other reports submitted by Contractor or Operator and issue of comments and recommendations to ensure proper implementation of Petroleum Operations; and
- (j) recommendation of the appointment of the independent international auditor.

Under this Iraqi clause, the joint committee not only supervises operations and finances but also oversees personnel and training issues, local goods and services and subcontracts. This isn't always the same, however - in other clauses, the scope of powers of joint management committees may be limited to the technical aspects of getting oil out of the ground.



Joint management committees are usually composed of an equal number of members from the host government and/or NOC, and IOCs. Members of the committee generally choose among themselves who holds the position of Chairman, which can be on a rotational basis or permanent.

Decisions of joint management committees may require the unanimous or majority vote of the parties on certain issues. In the event there is no majority consensus of the parties in such a vote, there may arise a deadlock, with an even number of votes on each side.

Deadlock Built In - Who Has The Deciding Vote?

One striking feature of many of these management committees as specified in the contracts is that, incredibly, they avoid addressing the question of who (between the government and the IOC) gets to have the deciding vote. If you have ever been on a committee when there was significant disagreement and no way to vote and move on, the boat can start to rock when there is disagreement and no clear way to resolve it by a simple vote.

The Libyan contract for example specifies a committee of four, with two from the companies and two from the government. Ghana's contract with Tullow specifies eight members, four and four. But neither contract actually specifies what to do in the case of a tie.

EXCERPT FROM THE LIBYAN MODEL AGREEMENT STATES:

4.2 - In case of a deadlock, the Management Committee shall refer the matter to the senior management of the Parties. In case the Parties reach an agreement, the Management Committee shall convene and adopt a decision reflecting such an agreement.

So what happens if "the Parties" don't reach an agreement? This contract does not specify.

The Kurdistan Regional Government's contract with Talisman is even more complex. The Management Committee has four members, two from each side, one of the two from the government side is the chairman of the committee, and in the event of deadlock on any particular decision,

EXCERPT FROM THE KURDISTAN REGIONAL GOVERNMENT:

8.3 - Except as provided for in Article 8.4 and 8.5, in the event that no agreement is reached at the second meeting, the Chairman shall have the tie-breaking vote.

But, although this clause taken on its own appears as though it does address this issue, not so fast!

The next clause, Article 8.4, says Article 8.3 does not apply in the exploration period, and that if no agreement is reached "then the proposal made by the contractor shall be deemed adopted by the management committee."

And if that weren't complicated enough, Article 8.5 then lists eleven exceptions to the rule that the Chairman has a tie-breaking vote, including provisions as vague as "any matter having a material adverse effect on Petroleum Operations".

So actually, the issue isn't solved at all, and is left for parties to battle out themselves as and when they come to it. In reality there are a number of ways out of deadlock. One is referring the matter to the senior management of the parties. Another way is to appoint an independent expert or arbitration through mechanisms that are established separately elsewhere in the contract.

One might reasonably ask: why don't the parties just specify all of this at the outset? Government gets tie-breaking vote or there has to be unanimity? There is not one answer that would hold for all countries the world over, but as a general matter, it goes back to the "happy compromise" raised at the very outset of this chapter. IOCs want maximum flexibility and control over the operations and have the technical and financial capacity to carry them out, while governments also want control and to influence the operations, but they do not have the technical and financial resources to do so themselves. Deadlock and dispute resolution is when the otherwise happy compromise "hits a rough patch".

Even More Ambiguity

These committees, whatever title they choose to go under, do not meet on a daily basis- it is usually specified that they can be brought together at anytime, at the request of one or more members, but that they should meet at least twice a year. Each side is allowed to bring 'outsiders', or non-committee members, and usually members need to be notified at least 20 days in advance. It might be useful to think of them as a shareholders meeting, or a company board, than what you might normally imagine by the term 'management'.

As you might have been able to tell from this, there is an inherent ambiguity in the ongoing relationships between governments and international oil companies; this also corroborates what many lawyers and industry professionals say about negotiation being permanent in the oil industry. Even though you can sign and agree on a contract, there are many possible events for which the decision-making process is unclear if the parties have serious disagreement. Partly this is because, as written above, at the time of writing and negotiating the contract, it's impossible to know what might or might not happen during the contract's lifespan.

Some common hot issues for management committees are levels of investment

and levels of production and issues relating to domestic. Companies generally want to invest as little as possible for any given level of production as, unsurprisingly, their aim is profit maximisation.

THE OPERATOR

The operator is the lead actor to the joint management committee's director - the one who learns the lines, puts the work in, and shows up, every night of the performance. The one that does all of the day to day running around, and the one who carries out those "petroleum operations" we keep mentioning. After all of the decision-making at the petroleum phase level and the yearly level has been made, someone must actually implement those decisions on a day-to-day basis. Enter the stage: The **Operator**.

Broadly speaking, oil companies have begun to group together in consortia to bid for and manage large production, rather than going it alone. Among these companies, there will be one who is approved by the host government to be the operator.

The official terms outlining this role may differ slightly from one contract to another (**Operatorship, Joint Operating Companies, The Role of Operator**) but the concept is the same. In the following example, the operator is discussed in the definitions at the beginning of the contract.

EXCERPT FROM THE GHANA-TULLOW AGREEMENT:

1.50 - "Operator" means Tullow or such Party as may be appointed by Contractor with the approval of GNPC and the State, which approval shall not be unreasonably withheld or delayed;

Whereas in Azerbaijan, in the example given below, a Joint Operating Company (JOC) was established.

EXCERPT FROM THE AZERBAIJAN AGREEMENT:

6.1 - "Joint Operating Company. Contractor shall as soon as practicable after the Effective Date form a Joint Operating Company, which may be incorporated or created outside of Azerbaijan but shall be registered in Azerbaijan in accordance with Azerbaijan law. Contractor shall have the right to substitute or to establish additional entities to undertake some or all of the responsibilities of the Joint Operating Company with respect to Petroleum Operations.

By being in the Joint Operating Company, Azerbaijan is able to gain expertise as it participates in the process of the operator proposing and the committee discussing how it will carry out its wide range of roles. Other clauses (Article 6) specify target levels for the ratio of Azerbaijanis who are to work in the operating company at different stages in the project, rising to 90% in professional positions after five years of full operations in a field. This gives Azeris not just the opportunity to learn management and decision-making but also the carrying out of operations.

In Iraq's 2009 service agreements, the JOC-type structure specified was a **Field Operating Division**, a unit which was detached from an existing parent company owned by the Iraqi state. Under this structure, ultimate authority lies with the Iraqi state, but lower level decisions are delegated downwards to the **Management Committee** and then to the approved operator, the Field Operating Division.



Contracts will often use the more generic term "contractor" when it is in fact the operator who will end up generating this work on behalf of all of the joint venture partners. Just because the contract says that the Contractor will carry out certain activities as the clause above does, it does not mean that all of the companies that comprise the contractor will in fact carry them out. The Operator will generally do these. However, if the Operator does not, for some reason, carry out the obligations, all of the other companies will be responsible for fulfilling them. This may mean finding a new operator or appointing a new operator from among the group, though these situations are relatively uncommon.

What Does The Operator Do?

Taking, again the Shah Deniz PSA example, the obligations of the operator are the Petroleum Operations, as outlined below:

EXCERPT FROM AGREEMENT ON EXPLORATION, DEVELOPMENT AND PRODUCTION SHARING FOR THE SHAH DENIZ GAS PSA AS OF 1996

"**Petroleum Operations**" means all operations relating to the exploration, appraisal, development, extraction, production, stabilisation, treatment (including processing of Natural Gas), stimulation, injection, gathering, storage, handling, lifting, transportation of Petroleum up to the Delivery Point (but including any pipeline reversal and other operations beyond the Delivery Point as provided in the Article 10 and Appendix X) and marketing of Petroleum from, and abandonment operation with respect to, the Contract Area.

Reporting And Monitoring

Within the contract, there are also mechanisms in place to ensure that the operator does what they are supposed to do. Key provisions relating to operations are the keeping of and access to records about everything that happens. To find these clauses, look for titles like **Data and Information, Reports, Books and Records** and **Access to Petroleum Operations**, which outlines what kinds of information are kept and supplied to the government, as well as ensuring that the government has the right to inspect such data. Like the government, the other companies will also receive these reports. They, too, are interested in making sure the Operator is carrying out the petroleum operations efficiently and effectively. In this respect, they are like the government in that they are a part of the decision-making process but do not carry out the day to day operations.

Aspects addressed in this data monitoring are not just (directly) about money, such as accounting and auditing. Petroleum extraction is incredibly data intensive, and this costs a lot of money. So, the contracts may also require the IOCs to save and keep unused cores and samples from wells and make them available, as well as all data resulting from petroleum operations, including geological, geophysical, engineering, well logs and production data, as well as reports, analyses, interpretations, maps, and evaluations.

Some contracts supply a lot of detail about what exactly the company has to provide- for example, in the Shah Deniz PSA it is written:

EXCERPT FROM AGREEMENT ON EXPLORATION, DEVELOPMENT AND PRODUCTION SHARING FOR THE SHAH DENIZ GAS PSA AS OF 1996

7.1 e) "Contractor shall supply to SOCAR:(i) daily reports on drilling operations and weekly reports on field geophysical surveys as soon as they are available:(ii) within fifteen days after the end of each Calendar Quarter, a report on the progress of Petroleum Operations during the preceding Calendar Quarter covering: 1. a description of the Petroleum Operations carried out and the factual information obtained; 2. a description of the area in which the Contractor has operated; and 3. a map indicating the location of all wells and other Petroleum Operations"

Here, the term "contractor" is used (as noted above), but it is the operator who is tasked with carrying out these activities on behalf of the IOCs.

These clauses also specify that representatives of SOCAR only have to give three days notice at any time to carry out an inspection of "Petroleum Operations", which

could either be company offices or in the field; this, in effect, is a way of keeping the operator on their toes.

THE MONEY



MATHS, MYTHS, AND MENTALLY WARMING UP

Let's face it: most of us do not do mathematics every day. With calculators, computers, and economists around us, why do the maths ourselves? For many, the last time we contemplated percentages and equations and the like may have been high school. But numbers are unavoidable in this section on the fiscal regime of petroleum contracts, and actually it turns out they're not too bad.

The Origin Of The Maths

Contracts haven't always been so numerically challenging. In the days when the global oil industry was dominated by seven major oil companies known as the Seven Sisters, the mathematics of an oil agreement was a royalty- a single percentage of production volumes or revenues- with pricing reported by the company itself. In many ways, the arithmetic gymnastics that you need to go through today in order to calculate the many different revenue streams in an oil project are actually a result of a government entering the negotiating ring, and becoming more assertive. They've begun to use more complex ways to create additional revenue streams, all of which kick in at different moments in the project's life cycle.

The complexity of the numbers in modern contracts comes from complex political and economic relations within the oil industry. The rise of resource nationalism, the increasing number of state-owned oil companies, the volatility of oil prices, means that governments try to capture as big a share of the money as possible while still encouraging investors to come in and spend their own money on projects that might fail through no fault of their own. These factors, amongst others, contribute to complex fiscal terms.

Let's Get Down To It

Now, to get some understanding of how it works, we have to get our hands dirty.

This section starts by building from the ground up, running through the range of fiscal tools that are in current use and which together are used to build a fiscal regime. Next, in Fiscal Strategies and Solutions, we examine such regimes in their entirety and how they address particular goals a government might have in developing its petroleum industry - or not. Then we look at how governments and their citizens can assess how they are doing in fiscal and financial terms and find that despite the availability of statistics it is not easily reducible to one figure. Finally, we explore how oil is priced, another aspect which is not as straightforward as it might sound.

As people rightly demand more information about how natural resources are

being managed on their behalf, there is a tendency to grab whatever snippets of information are around and take it for the whole picture. Unfortunately, there is no one single number that can explain the whole financial situation.

Example 1: If you hear that your state-owned oil company has a 25% share in a consortium, you might assume that your country is only getting a 25% share of revenues. This isn't necessarily true - the actual figure might be a lot higher. In many contracts, there are bonuses, gross royalties, profit oil, cost oil, state participation and all kinds of taxes that all contribute to the state's total benefits from the petroleum.

If you hear a government has 70%, the first question you should ask is 70% of what? A percentage must always have a base, or the value of which the percentage is calculated. Saying your country gets 70% doesn't get you as far as you might want: what assumptions were used? When we will get this 70%? These are all questions that a percentage alone does not answer.

Example 2: Say we are in a state where the state oil company is taxed just as any other company working in the state. We have a 51% state participation rate- the state contributes 51% of costs, and gets 51% of benefits. If there's no discovery, there will be no benefits. That's 51% of 0 dollars in benefits, which is 0 dollars for the state. In fact, as the state has to invest money for the costs incurred for exploration, it ends up paying money and not receiving any.

Now let's assume that there is indeed a discovery, which generates 100 million dollars in benefits. That leaves 51% or 51 million dollars to the state oil company. In addition, if that 100 million dollars is taxed at 25% for corporate income tax (and remember, here the state company has to pay taxes just like the international companies) then the taxes paid to the government from the state oil company will be:

25% of the state owned oil company's share of benefits = 25% of 51 million dollars

This is calculated by: $0.25 \times 51 = 12.75$ million dollars

But don't forget, the government also gets taxes from the international oil companies, who have received the total benefits minus the state oil company share of 51%, that is, 49%.

So government corporate income tax from the IOCs, given that it is taxed at 25%, is:

25% of the international oil company's share of benefits = 25% of 49 million dollars

This is calculated by: $0.25 \times 49 = 11.75$ million dollars

Lastly, there's often confusion about the difference between revenues and profits. To clarify: a project generates income, for example through the sale of crude. A project's income is sometimes also referred to as revenues. Usually, there are multiple ways of receiving revenues, or multiple 'revenue streams', which comes

from, for example, taxes and royalties as well as direct profits.

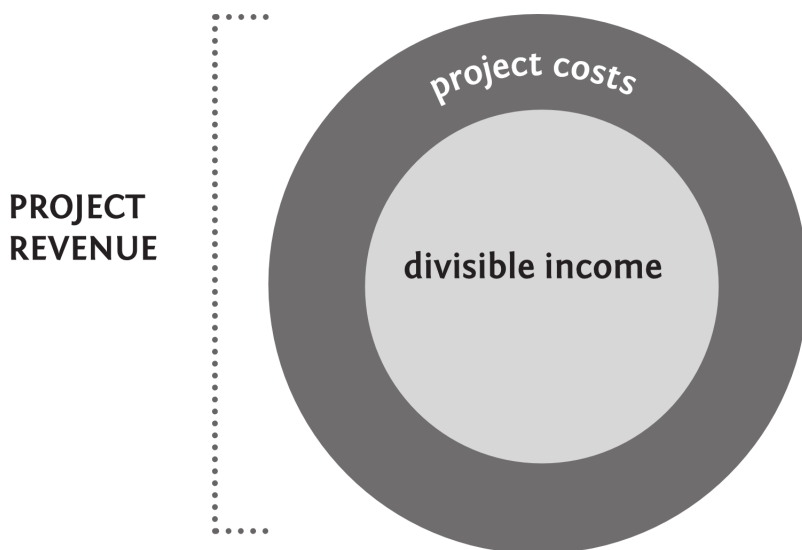
Revenues include money spent - which are considered as negative revenues - as well as money coming in, positive revenues. Profits on the other hand, are calculated from the total project income minus the project costs -

To add to the revenue confusion, the government receives additional revenues from the project in the form of taxes and royalties. Costs are the expenditures on equipment, salaries, etc incurred throughout the project. Profit is what is left over if costs incurred and taxes are deducted from the project's income.

THE FISCAL TOOLKIT

States and International Oil Companies (IOCs) have many options at their disposal to share the value of oil and gas projects. Let's call these 'tools' that the state or IOC can use to determine a fiscal payment that is made to either side. Together, these tools make up a 'toolkit' that can be used to design the **fiscal regime** - the rules for managing money- in a petroleum contract.

The basic concept here is that the state and the IOC need to share the 'divisible income'. This is the term used to describe the amount of money that remains after the lifetime revenues of a petroleum project are reduced by the lifetime costs of the project.



Slicing the pie

The share of the divisible income that goes to the state is called 'government take'. The remainder that goes to the IOC is called 'investor take' or 'contractor take'.

This chapter will describe each of the fiscal tools that are commonly used in petroleum contracts. The next chapter will then describe how states select some of these tools to create a petroleum fiscal regime that shares the divisible income.



Don't worry if you don't understand all of the topics described below. This is an overall description of fiscal tools which could seem confusing to start with, but trust us! Your understanding of these issues will deepen as you begin to explore contracts on your own.

Tools For Concessions, Production Sharing Contracts And Participation Agreements

The fiscal regime of concessions, production sharing contracts and participation agreements have one main factor in common: each of them define payments that are made to the government, by the IOC. Thus, the IOC gets to keep the overall petroleum revenue, and simply pays out whatever it owes to the government.

Fiscal tools in these three types of contracts include:

- signature bonus
- production bonus
- rental
- royalty
- corporate income tax
- profit share
- state participation
- other profit-based taxes
- other general taxes (such as import duty, sales tax, property tax, excise tax, withholding tax)



An entire fiscal regime for a particular concession, production sharing contract or participation agreement rarely uses just one of these tools. Far more commonly, it will be a combination of three or more - together they are used to create various financial flows, as decided upon by the host government.

Tools For Risk Service Contracts

The fiscal regime for a risk service contract is distinct from all other petroleum contracts. This is because the element of *service* by the IOC is what is being compensated. In these, unlike the agreements mentioned above, payment flows *from* the government *to* the IOC for services rendered.

So, with this contract type, the government retains the overall revenue, minus what they pay to the companies; the service contract simply defines terms and conditions for certain services that the IOC carries out, for which it is paid. Governments naturally like the ideology behind the service agreement model as it

reinforces, politically and financially, a high degree of control and complete ownership of the resource. Iraq's service agreements of 2009-11, are an example of such a risk service agreement.

There is only one type of fiscal tool for risk service contracts, and that is the 'service fee' which may be defined differently per contract.

Description Of Individual Fiscal Tools

The different types of fiscal tools are described below. The examples merely illustrate ways in which a tool can be used. There are a number of cases where tools are used differently.

- **Signature Bonus** - a payment made to the government at the time that the petroleum contract is granted.

The signature bonus is frequently a deciding factor in determining winning bids, when companies want to be awarded a contract. It may be negotiated, or set by legislation.

It can vary from as little as a few thousand dollars up to many millions. Signature bonuses tend to be small for fields where geological data is relatively poor or non-existent, and so exploration cost is high. Conversely, signature bonuses are high where there is good geological data and thus a higher chance that exploration will be successful.

Example: Angola once awarded an deep water offshore block with a \$1.1 billion bonus, and the province of Alberta in Canada awarded an oil sands lease for \$465 million. These are unusually high bids. In the new fields off the coast of West Africa, signature bonuses so far are much smaller.

A signature bonus doesn't depend on whether the IOC finds oil in commercial quantities or not - it is paid by the company to the government regardless, and as such, it involves no risk for the government. Signature bonuses can be found in all types of petroleum contracts, even in some risk service contracts like Iraq's Technical Service Contract. It is payment for the right to conduct operations under the petroleum contract.

- **Production Bonus** - a payment made at a certain point in time during the life of the petroleum contract.

A production bonus may occur at the time that a commercial discovery is declared, at the time that petroleum production begins, at a defined production

rate, or at a defined quantity of cumulative production. An example of payable production bonuses is shown below.

EXCERPT FROM THE LIBYA EXPLORATION AND PRODUCTION SHARING AGREEMENT:

- (a) an amount of one million US Dollars (US \$1,000,000) to be paid in respect of each Commercial Discovery within thirty (30) days after Commercial Production Start Date of such Commercial Discovery; and
- (b) an amount of five million US Dollars (US \$5,000,000) upon achieving cumulative production of one hundred million (100,000,000) Barrels of oil equivalent from each Commercial Discovery and thereafter, an amount of three million US Dollars (US \$3,000,000) upon achieving each additional thirty million (30,000,000) barrels of oil equivalent.

The production bonus provides to the government a fixed amount of revenue at a certain point in time. Also, this bonus tends to increase as the amount of production increases.

- **Rental** - a fixed payment made on an annual basis at the beginning of the calendar year or contract year.

A rental may take on different forms- it could be a fixed amount for the contract, or fixed amount per square kilometre of operations land, or a negotiated amount. It may be payable during the exploration phase, the production phase or both.

Example: In Ghana, there is a rental of \$30 per km² during the first exploration period, \$50 per km² during the next exploration period, \$75 per km² during the final exploration period and \$100 per km² during the development and production phases.

The rental serves a number of purposes. It provides to the government a guaranteed annual income of a known amount, which helps in budget planning, irrespective of changing oil prices. The government can calculate the expected amount of rental payments it will receive based on the number of petroleum contracts it has granted and the area that they cover. This contributes to the government's administrative costs of running the petroleum operation. It also creates a mild incentive for the IOC to voluntarily relinquish any area where it does not intend to conduct exploration activity, permitting the government to offer that area to other companies

Rentals are used globally in concessions, production sharing contracts and participation agreements. IOCs are often also required to pay additional amounts for access to the surface for conducting petroleum operations- sometimes to the private occupiers of the surface, and sometimes to the state.

- **Royalty** - a payment made by reference to the amount and value of petroleum produced

A royalty is a traditional feature of many petroleum contracts. A royalty is usually calculated without deduction of any costs. There are various forms of calculating royalty, as outlined below.

Fixed Percentage Royalty

The most common royalty is a fixed percentage of the petroleum produced. Early petroleum concessions would frequently establish a royalty to the state or landowner of twelve and a half percent (or one-eighth) of the oil & gas which is produced. Cambodia, Syria and Tanzania continue to charge royalty at this rate. Fixed royalties of ten percent (Gabon, Malaysia, Brazil, India) to fifteen percent (Congo-Brazzaville) are also quite common; but royalties of as low as one percent and as high as thirty percent can also be found.

A royalty takes no account of the costs of exploring, developing or producing oil & gas. Consequently, depending on what those costs are, a fixed royalty of say, 12.5%, could easily reduce company profits by 25% or more. Therefore, if a fixed royalty is too high, a producer may abandon the project even though oil & gas can still be produced.

Fixed royalty rates may be common, but increasingly states are creating sliding scale royalties that vary the royalty rate based on other criteria. A sliding scale royalty rate may be created using the following:

- level of field production
- level of well production
- location
- cumulative production
- production rate and price
- R factor
- internal rate of return
- other criteria such as water depth, oil gravity, or elapsed time

The concept of a sliding scale is also used in relation to profit shares which are

discussed below. The following description of sliding scales will therefore be applicable to that fiscal tool as well.

Sliding Scale Royalty

Sliding scales are used to escalate the royalty based on a factor that tends to predict the profitability of a project. Oil & gas projects tend to be more profitable when:

- production rate is higher
- prices are higher
- costs are lower
- costs have been recovered

Therefore, a petroleum project is likely to be able to bear a higher royalty in these circumstances. By using these factors as an analogue of profitability, it is possible to create a fiscal system that is designed to generate a higher rate of government take as a project becomes more profitable. This can happen without measuring the actual profitability of a project, which is an administratively difficult or expensive process.

Example: In the US Gulf of Mexico, the royalty rate is a sliding scale based on the water depth in which the well is drilled:

0 - 200 meter - 16.7% royalty

200 - 400 meter - 16.7% royalty with a royalty holiday on the first 17.5 MMboe

400 - 800 meter - 12.5% royalty with a royalty holiday on the first 52.5 MMboe free

over 800 meter - 12.5% royalty with a royalty holiday on the first 87.5 MMboe free

The logic of this royalty structure is that the costs of drilling are higher in progressively deeper water, so the royalty needs to reduce to compensate for the increased cost.

An increasingly common method for creating a sliding scale that is designed to address profitability is the use of what is referred to as the 'R factor'. 'R' stands for 'ratio', so an R factor is a sliding scale that employs a ratio of two numbers to determine a rate. In the oil & gas industry, the most common R factor is a ratio of cumulative revenues divided by cumulative costs, as follows:

$$R = \frac{\text{Cumulative Project Revenues}}{\text{Cumulative Project Costs}}$$

- R is less than one when a petroleum contract first begins. and the IOC is incurring costs but does not yet have production - so, when project costs are

greater than project revenues

- R = 1 once project revenues equal project costs (a time which is commonly referred to as 'payout')
- R is more than one when project revenues are greater than project costs, in the production phase

An R factor is then used to create a sliding scale royalty as follows (using Peru as an example):

R-FACTOR: ROYALTY RATE:

$0 < R < 1.0$	15%
$1.0 < R < 1.5$	20%
$1.5 < R < 2.0$	25%
$R > 2.0$	35%

Therefore, a royalty rate that began at 15% for initial production (when the R factor is less than one, because costs are greater than revenues) would jump by steps to 35% when the IOC has received out of production revenue an amount equal to twice its costs, when they are in the production phase.

Royalty Determination Point

The point at which the royalty is to be determined can have a significant impact on the amount of royalty paid. Royalties can be determined at:

- the wellhead (common in North America)
- the field measurement point (common outside North America)
- block boundary
- export terminal

If the point of royalty determination is further along in the value chain from the point at which the sale of production occurs (as is commonly the case), then it is necessary to calculate the value at the royalty determination point. Typically this is done by deducting the cost to transport and process oil & gas from the royalty determination point to the point of sale. This can be more difficult than it sounds, because often these costs are not arm's length costs paid to a third party. Where the IOC owns the transportation and processing facilities, it is necessary to ensure that these costs are not excessive and do not include a profit component beyond a reasonable return on invested capital goods.

Example:

The Money

Value at export terminal \$ 89.00 per bbl

Pipeline tariff \$ 4.00 per bbl

Value at field terminal \$ 85.00 per bbl

Processing tariff \$ 2.00 per bbl

Value at well head \$ 83.00 per bbl

In the example above, a 10% royalty would be \$8.90 if determined at the export terminal, \$8.50 at the field terminal and \$8.30 at the wellhead. In similar situations for natural gas, the deductions leading to the value at the wellhead can be so significant that the royalty is significantly reduced.

Royalty Determination

A royalty is typically paid on all production from the well, but there can be some exclusions, such as:

- oil & gas vented or flared (where permitted)
- oil & gas reinjected in the reservoir
- oil & gas used in field operations
- oil & gas lost (so long as losses did not result from negligent conduct)

Payment In Cash Or In Kind

A state may opt to receive its royalty 'in kind', which means that it can take physical possession of its share of actual petroleum for its royalty. A state that has the capability to market its own production, or a desire to make use of its production share for a different purpose than the IOC (for example, to take it to a domestic use) may choose to do this, and it can be a useful right. In some cases, states prefer to take their production in kind because they can actually do a better job than the IOC of marketing the state share. However, most states allow the IOC to sell the state's royalty share of production and accept payment in cash at the value that the IOC obtained. A right to take a royalty in kind requires a few months' advance notice to the IOC, and for a gas project, it may be a one-time election.

Price Discounts

Some states apply discounts to the price at which oil is to be sold by petroleum companies to the domestic market. This obligation to sell to a domestic market at a discount has the same economic effect on an IOC as a royalty.

Example: In Indonesia, there is a 'local market obligation' to sell 25% of production into the domestic market at 25% of the world oil price, following a five year holiday.

- **Corporate Income Tax** - a tax on the net income (or profit) generated by a corporation from the activities that it conducts

It is beyond the scope of this book to discuss the concepts of corporate income taxation. However, there are a number of attributes of corporate income taxation that are relevant to understanding the overall fiscal features of a petroleum contract.

Most petroleum fiscal regimes include corporate income tax as one of its features. The underlying concept is that IOCs, like any other corporate citizen, should pay income tax (in addition to other payments as discussed above, because petroleum is a state owned resource). Even in Ireland, whose fiscal regime for petroleum operations is comprised solely of its corporate income tax, IOCs are charged a 25% corporate income tax whereas other companies in Ireland pay only 20%.

Corporate tax rates applicable to petroleum activities vary widely around the world, from a low of zero in some tax haven states to a high of 85% for certain operations in Nigeria. However, most states impose a corporate tax in the range of 25% to 35%.

It is important to understand that corporate taxation is a different type of fiscal feature compared to royalties, profit shares and other tools. Corporate income tax is determined at the level of the corporation, where other fiscal tools determine the amount payable at the level of the *well*, the *field* or the *petroleum contract*. Consequently, corporate income tax will include features like deductions for depreciation and other features of the corporate income tax regime. The resulting tax calculation can therefore yield very different results than a royalty; a 12.5% royalty is very different than a 12.5% rate of tax.

Some states create special rules for assessing corporate tax on oil & gas operations.



An IOC may be required to calculate its corporate tax in a special way, such as on its petroleum sector operations only (as in Thailand); its upstream operations only (as in Pakistan); its offshore activities only (as in UK); its petroleum contract area only (as in Indonesia and Tunisia) or in each development area (as in Angola).

This concept is sometimes referred to as '*ring fencing*'; the activities of the IOC are taxed as though there is a ring fence around the defined area.

Ring fencing allows the tax regime to look only at the activities within the ring

fence, so that other gains, losses or costs outside the ring fence are excluded. We will see this concept used in other fiscal tools as well. The converse of ring fencing is called 'consolidation', where activities across multiple contract areas are treated on a combined basis.

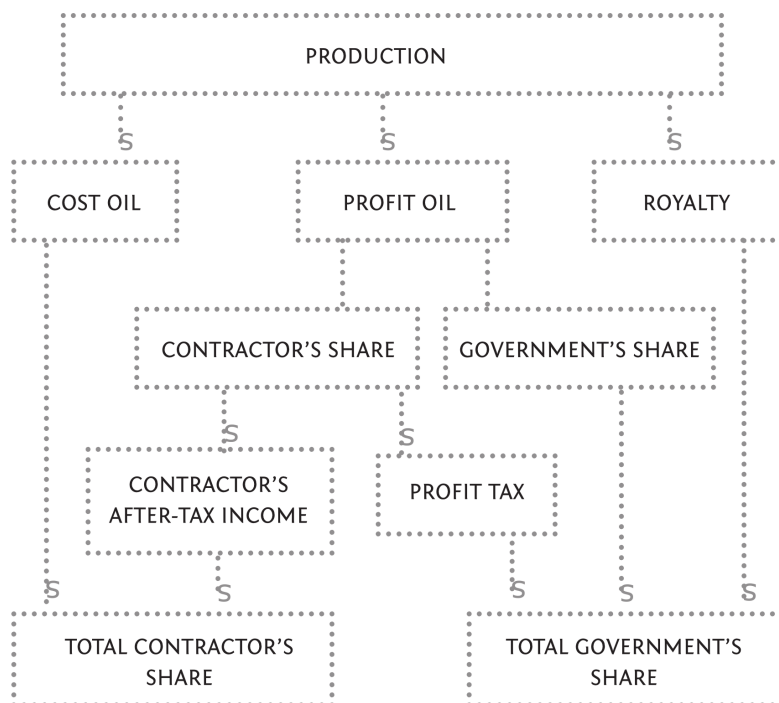
Profit Sharing

Every production sharing contract includes a fiscal tool that defines some of the production as 'profit oil' or 'profit gas' and shares it between the state and the IOC. In order to understand these concepts, let's return to the underlying concept of a production sharing contract which creates a relationship where the IOC is a 'contractor' to the state, and it has been hired to perform petroleum activities in a contract area owned by the state. The IOC explores, and if successful exploration occurs, develops and produces petroleum. It has incurred some costs in doing so. It is necessary to define in the petroleum contract:

- ***cost oil***, which is *the share of production that the IOC will receive for recovery of the costs it has incurred*, which is subject to a maximum amount (the 'cost oil limit'); and
- ***profit oil***, which is *the share of production remaining after cost oil has been delivered to the IOC*.

If the resulting production includes gas, there will also be a cost gas limit and a profit gas share, which often is a different limit and share owing to the economics of gas development.

The following diagram is a visual representation of how the total production is allocated between the IOC and the state in a production sharing contract:



Production sharing

Now let's examine the different ways that profit oil/gas shares are determined, and cost oil/gas limits are established. For ease of reading, in this section we will speak only of 'profit oil' and 'cost oil'; the same concepts apply equally to gas.

Fixed Profit Oil Shares

The first government to create the production sharing contract was Indonesia, where the state oil company Pertamina had a monopoly for petroleum exploration rights and therefore a concession could not be awarded. Pertamina developed the production sharing contract on the following basis: the IOC as 'contractor' would receive recovery for costs incurred out of a maximum of 40% of production (the 'cost oil limit'), and the balance of production would be shared between Pertamina as to 60% and the contractor as to 40% (the 'profit oil share'). All capital and operating costs are recovered from a maximum of 40% of production. Any costs in excess of the cost oil limit are recoverable in following months in a perpetual carryforward until finally recovered. If costs are less than the cost oil limit, the excess is treated as profit oil and shared by the parties in their respective profit oil shares. In other words, the cost oil allocation to the IOC is the lesser of the 40% cost oil limit and the actual unrecovered costs.

This simple formula has changed a number of times since first used in Indonesia, and many new concepts have been created to share profit oil and determine the cost oil limit. Many states still use fixed profit oil shares, such as:

- 40% in Timor Leste
- 50% in the Thailand-Malaysia joint development zone
- 60% in the Philippines

Sliding Scale Profit Sharing

Profit sharing can also be done using a sliding scale designed to increase the state's share of profit oil as the project attains different fiscal or production criteria. A sliding scale royalty profit share may be created using the following factors:

- level of field production
- cumulative production
- combination of field and cumulative production
- R factor
- combination of R factor and field production
- internal rate of return
- cost limit

An R factor can be used to create a sliding scale profit share, as shown below (using Azerbaijan as an example):

R-FACTOR PROFIT OIL TO GOVERNMENT

$0 < R < 1.0$	15%
$1.0 < R < 1.5$	20%
$1.5 < R < 2.0$	25%
$R > 2.0$	35%

Cost Oil

Cost oil is the share of production that is allocated to the IOC to permit the IOC to recover the costs it has incurred in conducting operations under the petroleum contract. Most states set a limit on the amount of the produced oil that can be allocated for cost recovery; this is called the 'cost oil limit'.

Example: Cost oil limits can vary from 25% (as in Croatia), 40% (as in Equatorial Guinea and Tanzania), 50% (as in Gabon, Qatar and Congo (Brazzaville) and 90% (as in Cambodia and Madagascar).

The higher the cost oil limit, the better for the IOC, because it will recover its investment more quickly. Fast recovery of investment is more attractive to the IOC and meets government objective of attracting foreign investment.

Timor Leste and Guatemala have no cost limit and no cost depreciation rules, so in theory the IOC could receive 100% of production until costs are recovered. But both of these states add a royalty that is payable in cash or in kind, thereby ensuring a minimum production share to the state.

- **State Participation** - as a fiscal tool refers to cases where the state participates in the petroleum contract as a co-contractor with the IOC.

States sometimes participate directly in oil & gas activities, typically through a state or national oil company (often referred to as a "NOC"). In effect, the state co-invests in the exploration, development and production activities together with the IOC. If the state participates in this way it is a party to the petroleum contract in two capacities: as the owner of the oil and gas resource and grantor of rights under the petroleum contract **and** as an investor.

There are three important questions that affect the role of state participation as a fiscal tool:

Question 1: how large a percentage of the project will the state oil company have
 Question 2: when does the state oil company begin to participate, and
 Question 3: what costs of the project will the NOC bear

Answer 1: most states establish a fixed percentage for state oil company participation, which varies from a low of 5% (as in Belize) or 10% (as in Indonesia), to a high of 50% (as in Brunei and Tunisia) to 60% (as in Abu Dhabi).

Answer 2: when the state oil company participation begins, this can be from the start of the contract. However, the challenge for a state oil company is often the ability to pay its share of the costs, and the willingness to assume the exploration risk that the activity may not be successful. It is rarely a good idea for a state to take a lot of exploration risk, particularly if it is not a wealthy state. This challenge can be addressed in two ways. One way is to give the state oil company an option to participate in the project, and triggering that option at a point in time when some or all of the exploration risk is eliminated. Therefore, many state participation rights give to the state oil company an option to participate up to its designated share at the point of declaration of commerciality, or upon approval of the development plan, for example.

The second way of managing the challenge of the state's ability to pay its share of costs is addressed by answering the third question, as to what costs will the state oil company bear.

Answer 3: There are three alternative answers to this question which define the type of state participation. These are:

- 'full equity' participation (as in Norway) in which the state oil company bears its share of all costs in full;
- 'partial carried interest' in which the IOC bears (or "carries") all of the costs incurred prior to the state oil company's election to participate but, following the election to participate, there is a repayment of some or all of the state oil company's share of the costs incurred before the election to participate (as in Indonesia or Uganda). The repayment may be, under a Production Sharing Contract, for example, by way of the IOC receiving part of the state oil company's share of production. This is also known as a "soft" carry; and
- 'full carried interest' in which the IOC bears (or "carries") all of the costs incurred prior to the state oil company's election to participate and there is no repayment of the state oil company's share of the costs incurred before the election to participate (as in Cameroon, Chad and Trinidad & Tobago). This is also known as a "hard" or sometimes as a "free" carry.

In all cases the state oil company is responsible for its proportion of petroleum operations costs following the exercise of its option to participate. These different forms of carry can perhaps be better understood by way of an example:

Example: For these purposes we will look at the 2000 version of the Ghana model form Petroleum Agreement where the right of state participation is exercised by the Ghana National Petroleum Corporation ("GNPC"). Pursuant to this contract GNPC has both a state participation of 10% from the date that the contract is entered into (the

"Initial Interest") and has an option to acquire a further state participation at the time of a commercial discovery (the "Additional Interest"). The Initial Interest is carried by the oil company in relation to all costs for exploration and development operations and is a full/free/hard carry. GNPC may elect that the Additional Interest is carried by the oil company in relation to the costs of development and production operations but, if it does so, it will be a partial/soft carry that is reimbursed. Taking a look at the relevant language in the example below in relation to the Initial Interest:

EXCERPT FROM THE GHANA MODEL FORM PETROLEUM AGREEMENT:

2.4 - "GNPC shall have a ten percent (10%) Initial Interest in all Petroleum Operations under this Agreement. With respect to all Exploration and Development Operations GNPC's Initial Interest shall be a Carried Interest. With respect to all Production Operations, GNPC's Initial Interest shall be a paid interest."

"Carried Interest" is defined as:

"an interest held by GNPC in respect of which Contractor pays for the conduct of Petroleum Operations without any entitlement to reimbursement from GNPC".

Pursuant to Article 2.4, the Initial Interest provides for state participation from the start of the contract and that the Initial Interest is a Carried Interest with respect to Exploration and Development Operations. This means, per the definition of "Carried Interest", that the oil company (Contractor) will pay such costs and have no right of reimbursement that is, it is a full/free/hard carry. However, GNPC will have to pay its 10% share of the costs of Production Operations as stated by the last sentence in Article 2.4 above.

In relation to the Additional Interest:

EXCERPT FROM THE GHANA MODEL FORM PETROLEUM AGREEMENT:

2.5 - "In addition to the Initial Interest provided for in Article 2.4, GNPC shall have the option in respect of each Development and Production Area to contribute a proportionate share not exceeding [x]% of all Development and Production Costs in respect of such Development and Production Area....thereby acquiring an Additional Interest of up to [x]% in Petroleum Operations in such Development and Production Area. GNPC shall notify Contractor of its option with ninety (90) days of the Date of Commercial Discovery."

GNPC's right to acquire the Additional interest (or in industry jargon to "back-in") arises at the date of commercial discovery and it has 90 days from that date in which to exercise such right. If GNPC does not exercise its right in the specified 90 day period it will not acquire the Additional Interest. In exercising such right it is required to contribute a "proportionate share" of all development and production costs. Accordingly, based only on Article 2.5, the Additional Interest is not a carried interest from the date of its acquisition - GNPC has under Article 2.5 to pay its share of costs in relation to such interest. However, Article 2.9 goes on to provide that GNPC may on exercising its option to acquire an Additional Interest also:

EXCERPT FROM THE GHANA MODEL FORM PETROLEUM AGREEMENT:

2.9 - "elect to have the Contractor advance part or all of GNPC's total proportionate share of Development Costs as they are incurred.....Such advances shall be reimbursed with interest at the Specified Rate from GNPC's entitlement after recovery of Production Costs as provided in Article 10;"

This provision allows that GNPC can be carried by the Contractor for its Additional Interest share of development costs. The language is clear that this is an advance (or a loan) by the Contractor which will be reimbursed by GNPC with interest out of production after recovery by GNPC of its share of production costs. Thus, if GNPC elects to be carried in this way under Article 2.9 this will be a partial or a soft carry. However, in relation to the Additional Interest, like the Initial Interest, none of these provisions require GNPC to pay back the Contractor for a share of the exploration costs previously incurred by the Contractor. So, in relation to exploration costs, there is a full/free/hard carry for the Additional Interest as well

as the Initial Interest. GNPC is not carried by the Contractor for either its Initial Interest share or its Additional Interest share of production costs. It must bear those itself, the assumption being that it will be able to afford to meet its share of costs since it will be receiving revenue or a share of production at that point.

A point of detail in relation to state participation that is relevant particularly where the participation is not from the commencement of the petroleum contract but pursuant to the exercise of an option to participate later, is whether the state participates in all of the petroleum operations under the particular contract or, on a case by case basis, in each commercial discovery or field. Looking at the Ghanaian example above, it is clear that the Initial Interest is in respect of "all Petroleum Operations under this Agreement". By contrast GNPC has the option to elect to acquire its Additional Interest in respect of each development and production area on a case by case basis. This gives GNPC significant flexibility although it also increases the complexity of administering the agreement if there is more than one development and production area under the agreement and GNPC makes different elections in relation to these.

The significance of state participation rights involves more than just fiscal issues, so this is discussed in more detail in later chapters.

Other Profit-Based Taxes

The price of oil & gas is volatile. In July 2008, the price of oil hit an all-time high of \$147 per barrel. Only six months later, in December 2008, the price had plummeted to \$35 per barrel. One of the challenges of managing an oil & gas company is to be able to deal with prices of oil & gas that fluctuate in this way; financing, planning and investment is very difficult in such an environment.

Price volatility also makes difficult the proper administration of a petroleum sector by the state. A fiscal regime designed for a world where the price of oil had never exceeded \$55 per barrel (in other words, the world as it was until 2003) may not work well when the price is \$100 per barrel, as it has been for the year preceding the publication of this book.

One area where petroleum regulators are often criticised is that the fiscal tools do not extract enough revenue for the state where the price of oil is very high. Oil companies are accused of earning 'windfall profits', and states want to tax that windfall.

First, let's understand the term 'windfall' profit. It is in fact a forestry term. A lumberjack must earn his wages by the hard labour of cutting down trees and taking them to market. Occasionally, however, a big gust of wind will knock down many trees without any effort by the lumberjack. These trees, referred to as 'windfall', can then be easily sold by the lumberjack who has just made a fortunate but unearned

profit.

The same can be said for oil companies. When the price of oil rises significantly, it is hard to suggest that this is an 'earned' profit. There are many reasons advanced by IOCs to retain these profits, such as the fact that they permit more reinvestment to find additional production. However, the history of volatile oil prices has led many states to require an increased share of petroleum revenues when the profits rise above certain thresholds. Consequently, many states have created profit-based taxes that we must include in the fiscal toolbox.

Extra profit-based taxes may not be necessary at all where the other fiscal tools already include features that give the government a larger share of revenue when petroleum operations become more profitable. Sliding scale systems, R factors and 'internal rate of return' (IRR) features are designed to capture additional profits.

Examples of profit based taxes include:

- *Brazil's 'special participation', which takes a larger share of 'net income' as the production rate increases*
- *Ghana's 'Additional Oil Entitlement', which gives a larger share of oil production as the IOC's rate of return increases*
- *Algeria's TEP of between 5% and 50% for oil prices over \$30 per barrel (not applicable to new contracts under the new Hydrocarbon Law)*

Other General Taxes

Most states have a variety of other taxes which capture revenue for the state in a variety of activities. These are not taxes which are unique to the oil industry; they are intended to apply to all corporate entities:

- VAT or value added tax
- import duties
- export duties
- turnover taxes
- industrial taxes
- withholding taxes

An IOC needs to be attentive to the full variety of taxes that are applicable in a particular state before investing there. Similarly, a state needs to be alert to the fact that these taxes (and sometimes the bureaucracy involved in administering them) may tip the balance for an investor so that a petroleum project ceases to be

economic.

Exemptions And Waivers

Many states have created a fiscal regime that is designed to capture an appropriate share of the economic rent associated with petroleum operations so that these additional taxes are considered to be unsuitable for petroleum industry operations. Therefore, it is not uncommon to see that special exemptions are created for some of these taxes insofar as they would apply to IOCs. For example, IOCs import expensive drilling equipment and other materials into a state as part of conducting petroleum operations. The drilling equipment may later be exported out of the state when drilling operations are completed. Consequently, exempting drilling equipment from import duties is quite common.

Production sharing contracts state that title to every asset that is purchased by an IOC and incorporated into a petroleum operation is automatically transferred to the state. Applying a tax to an IOC who imports the asset that will immediately become owned by the state makes little sense.

- **Service Fees** - the compensation paid by a state to an IOC for the performance of services under a risk service contract.

Risk service contracts are not in wide use around the world; only seven states use them. Consequently there is only a limited variety of service fee systems. Fundamentally, there are three types:

Per Barrel Fee

Example: Iraq's Ministry of Oil has successfully awarded a series of risk service contracts in four bid rounds (called Technical Service Contracts, Development and Production Service Contracts or Exploration and Production Service Contract, depending on the round) which pays the contractor a fee per barrel of oil produced. These fees were as low as \$1.15 per barrel to as high as \$7.50 per barrel, which is remarkably low.

However, the fields on offer in the first three rounds were all discovered areas, some of which were supergiant fields with over five billion barrels of oil reserves. The fees were further reduced by a 25% fully carried state participation and a 35% income tax; the government take for these contracts was as high as 99% in some cases. Also, the per barrel fee is reduced by up to 70% as the R factor increases from zero to 2.0, which further reduces the IOC take. The IOC fees are converted to barrels of oil which is delivered at an Iraqi export point. IOC costs are recovered out of 50% of incremental oil production.

Price Catalogue

Example: Mexico's Multiple Service Contracts awarded in 2003 and 2004 involved a 'price catalogue' where each activity that the IOC performs (drilling wells, laying pipeline, operating wells, and so on) was priced in a catalogue attached to the contract. The IOC adds up the services performed by it during the month and submits an invoice. Payment is made in cash. This unusual structure was necessitated by Mexico's public works law. Mexico is now awarding contracts that utilize a per barrel fee, following changes to applicable legislation.

Fixed Compensation

Example: Iran's Service Contract (commonly called a 'buyback contract') rewards the IOC for fulfilling development activities set out in a master development plan by paying a fixed, pre-negotiated remuneration fee once the work is completed. This remuneration fee is negotiated, and the basis of the negotiation is to pay a fee that is estimated to be a fraction (on the order of 15%) of the expected costs that the development project. Costs and the remuneration fee are paid out of production resulting from the field that the IOC developed pursuant to the master development plan.

FISCAL STRATEGIES AND SOLUTIONS

The previous chapter listed the fiscal tools that governments use with IOCs to share between them the income from a petroleum project. This chapter will describe how these tools are used to create a 'fiscal regime' under a particular petroleum contract.

It is important to remember that there are over 500 different fiscal regimes in use today - more than the number of countries in the world! Some countries use more than one type of fiscal regime. This results from the different petroleum opportunities that exist in some countries, and the different risks, costs and rewards that may be gained from these opportunities. For example, offshore oil & gas exploration tends to be more expensive than onshore, so the fiscal regime needs to be adjusted to reflect this. Natural gas projects have a different price, cost, regulatory and operational environment, so fiscal terms for gas typically are more generous to the IOC than for oil.

We're going to give away the conclusion right now: there is *no single system that is the right one for every situation*. There are wide differences in geological prospects, reservoir conditions, costs, prices, infrastructure and availability of services. Attractive investment opportunities can exist in each jurisdiction, and a *fiscal system that works in one jurisdiction may not work in another*.

Strategies

So where to begin when creating, reviewing or evaluating a fiscal regime? Let's remember that the objective is to *share the divisible income* (project revenues minus project costs) between the state and the IOC. One approach is to ask a series of strategic questions about the goals the state wants to achieve, and then to use the appropriate fiscal tools to achieve those goals. Here are four key questions that can help a state to define its strategy:

- how should the fiscal regime treat changes in the *profitability* of petroleum operations
- what is the *timing* of the state's share of the divisible income?
- how much *risk* of success of petroleum operations is the state prepared to take?
- to what extent does the state want to *encourage initial petroleum investment and re-investment*?

We will examine each of these issues individually.

Changing Profitability

The fluctuation of petroleum prices, costs and production rates means that the profitability of oil & gas operations changes over time. Fiscal systems can react to these changes in one of three ways. A *regressive* fiscal regime gives the state a *lesser share* of revenues when profitability increases. A *neutral* fiscal regime gives the state the *same share* of revenues when profitability increases. A *progressive* fiscal regime gives the state an *increasing share* of revenues when profitability increases.

It is important to stress that these are not value-judgements on the fiscal regime. To say a state has a regressive fiscal regime is not to say that it is old, antiquated and out of touch with modern reality. There may be good reasons for a country to choose regressive fiscal tools that result in a regressive system.

Understanding Regressivity And Progressivity

A few examples may be useful to illustrate these effects. The first addresses a production bonus.

Example: In the Libyan petroleum contract described in the previous chapter, the IOC pays a bonus of \$5,000,000 when 100,000,000 barrels of oil equivalent is produced. Whether that oil is sold at a price of \$50 per barrel or \$100 per barrel makes a big difference to the IOC's profitability of the project, but the government's revenues from the production bonus is unchanged by this fact. The IOC is required to pay the bonus, regardless of whether its operations are more profitable or even unprofitable. So, a production bonus of this type is regressive.

A fixed royalty is another case in point.

Example: In the US Gulf of Mexico case mentioned earlier, where a 16.67% royalty applies in shallow water, the government receives one-sixth of oil produced. If the price of oil goes up, oil & gas operations almost always become more profitable, because costs tend not to increase in precisely the same proportion. However, the government receives the same one-sixth share of production regardless of the price increase. While the government's share is more valuable because the price is higher, it will in fact represent a lesser share of the profitability of the activity in most cases.

Corporate income tax is a neutral fiscal tool, because the tax is applied to a corporation's net income (or profit). The tax rate is the same, regardless of whether that profit is large or small. Fixed percentage profit sharing works the same way- it is also a neutral fiscal tool.

An example of a fiscal tool that increases the state's share of profits when profitability increases is an R factor royalty or profit share. In the Azerbaijan example in the previous chapter, the government's share of profit oil increases from

15% to 35% as R goes from zero to two. When oil & gas operations become more profitable, the R factor increases more quickly, and the state's share of profits increases. This is an example of a progressive fiscal tool.

A fiscal tool can be regressive, neutral or progressive with respect to the three key factors of petroleum profitability, which are price, costs and production rate. A sliding scale royalty that increases as the production rate goes up is a progressive feature in terms of production, but not for price or cost. A sliding scale based on the price of oil would be price-progressive but not cost or production progressive. Sliding scales using R factors or internal rate of return focus on overall profitability, and therefore they tend to be progressive across all three features.



Profitability of fiscal tools

Approaches To Profitability

The question of what approach to profitability should be adopted by a state is an interesting question. Historically, the most common types of petroleum fiscal tools are bonuses, rentals and fixed royalties, which are regressive. But governments typically prefer to tax corporations in all areas of endeavour on a neutral basis, and individuals on a progressive basis. So taxing IOCs on a regressive basis seems unusual when compared to other citizens, corporate or individual.

Moreover, the fluctuating profitability of the oil & gas industry is bound to lead to situations where an IOC's operations become very profitable at some times during the long term of a petroleum contract. States tend to be irritated when IOCs profits go up while the state's share of those profits go down or stay the same. This

fact is one of the reasons why states often change the fiscal regime during the term of an investor's operations, leading to instability and friction between state and IOCs.

Creating progressive fiscal features that give a state an increasing share of profitability is one way that this area of potential friction can be addressed. If a suitably progressive fiscal system exists, then a state should be pleased when oil industry profitability goes up, because the state's share of those profits will also go up.

Two notes of caution are in order when dealing with this approach to profitability. First, oil industry profits don't always go up; prices and costs go up and down. There are times when an IOCs activities may be unprofitable. If a state's share of revenues drop to zero in such circumstances, that can also be irritating to a state, and the state may not be readily able to deal with such an absence of revenue. So, there is a strong case to be made for regressive fiscal tools that generate government revenue whenever oil & gas is produced, and regardless of whether the activity is profitable.

Second, a fiscal regime that takes away too much of an increase in profitability can result in a situation where this acts as an incentive to increase costs. Economists refer to this behaviour as 'gold plating', because the IOC has an incentive to incur excessive costs (such as an imaginary plating of the facilities in gold) or no incentive to reduce costs. A regime can be tested for its goldplating by the use of a financial model; if an increase in costs by a dollar results in government revenues reducing by more than a dollar, then it's a goldplate. Such regimes may also create incentives to the IOC to reduce the production rate or sell production at a discounted price, which have similar effects as goldplating.

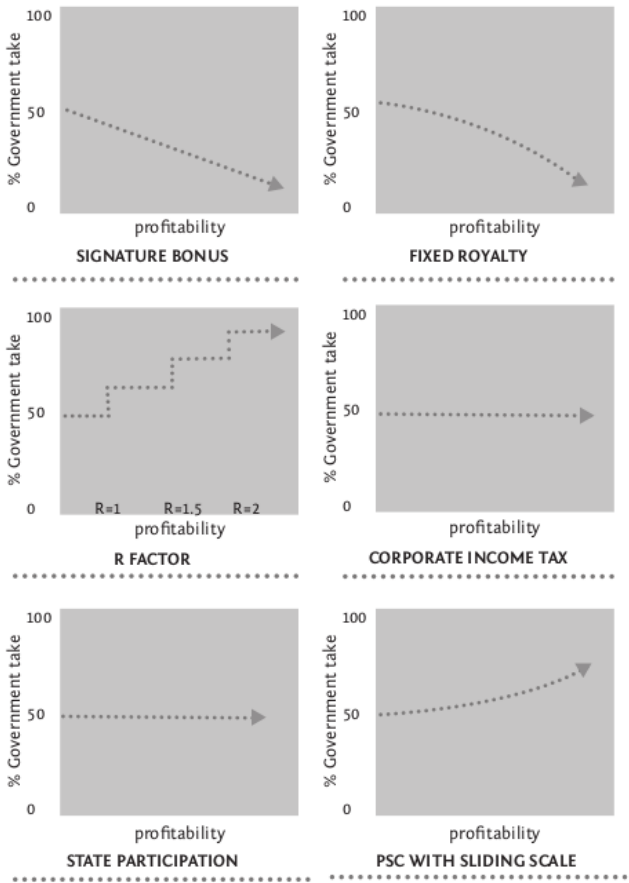
Goldplating results in a misalignment of the interests of the state and the IOC. Fiscal systems work better when the IOC has a financial incentive to achieve the same result as the state, which generally is to increase production at the highest price and the lowest costs.

Most states choose a variety of fiscal tools resulting in a hybrid system. When creating, reviewing or evaluating a fiscal regime, it is important to recognize the potential impacts of each tool in an environment where profitability frequently changes.

Profitability And The Fiscal Tools

Now that we understand the concepts of regressivity and progressivity, and the state can decide how it wants to approach this issue, we can assess which fiscal tools to use. Here is a list of the fiscal tools described in the previous chapter, and whether they are regressive, neutral or progressive:

- signature bonus: very regressive
- production bonus: very regressive
- fixed royalty: regressive
- sliding scale royalty: progressive
- corporate income tax: neutral
- fixed profit share: neutral
- sliding scale profit share: progressive
- state participation: neutral
- profit-based taxes: progressive
- other general taxes: varies, but generally regressive
- service fee systems: very progressive



Progressivity of fiscal tools

Timing Of Petroleum Revenues

Each of the fiscal tools described in the previous chapter provides revenue to the government at a different point in the lifetime of a petroleum project. A signature bonus is payable at the time the petroleum contract is signed, before production begins (and before it is even known if there will be production). A production bonus may be payable at the time that production begins and then at various times during the production phase. Corporate income tax is payable only once the IOC is making a profit, which usually means that it will need to have recovered all of its costs. Internal rate of return (IRR) based fiscal tools tend to generate the most income only after the IOC has earned a good rate of return.

So each of these fiscal tools can be said to be:

- 'front-end loaded', which means that they begin to apply before the IOC has recovered its costs (in other words, the state receives revenue before the IOC is making a profit)
- 'neutral', which means that they apply only upon the IOC recovering its costs (so the state profits only when the IOC profits)
- 'back-end loaded', which means that the state's share only becomes significant after the IOC is in a profitable environment

The state typically chooses the fiscal tool based on when it wants to receive the petroleum revenue. Naturally, states want money sooner rather than later, but IOCs would rather pay money later in the life of the project once profitability has been established. Consequently, this is a balancing exercise. The more that is required to be paid up front, the less can be expected as the back end, and vice versa.

There are certain parameters that help to understand the choice of the fiscal tool, but these are not included in the petroleum contract. One such parameter is the 'discount rate' of the government and the IOC.

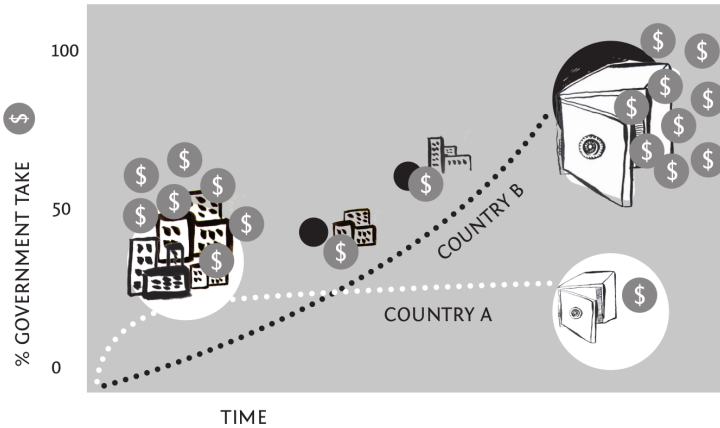
Example: A poor government that has a very high need for money today probably has a high 'discount rate': it would prefer to have \$1.00 of revenue today rather than \$1.20 a year from now, an effective discount rate of over 20%. A rich government that has the ability to borrow funds at attractive rates probably has a low discount rate, so if you offered it \$1.05 a year from now, it would prefer that over \$1.00 today, resulting in a discount rate of less than 5%.

IOCs have discount rates too, generally in the 10-15% rate or higher, because they can put today's dollar to use to generate a profit in a year's time. So, in the balancing exercise involved in choosing the timing of the revenue, the logical behaviour would be for wealthy governments to back-end load their fiscal regimes,

and poor governments to prefer to front-end load. Sometimes this logic prevails, but often it does not; for example, the wealthy province of Alberta, Canada has a system that prefers up-front payments, while Papua New Guinea has a back-end loaded system.

Here is how the fiscal tools fit into the timing scenario:

- signature bonus: front-end load
- production bonus: varies
- fixed royalty: front-end load
- sliding scale royalty: varies
- corporate income tax: neutral
- fixed profit share: front-end load to neutral (depending on cost oil limit)
- sliding scale profit share: neutral to back-end load
- state participation: neutral
- profit-based taxes: back-end load
- other general taxes: varies



Fiscal frontloading

Service fee systems are not as easily categorized, because the government pays the contractor a service fee retains all the revenues. The impact on the state and the investor varies with the service fee system that is chosen.

Risk For The State

IOCs generally bear the risk of success or failure in petroleum operations.

Managing and bearing exploration risk, capital cost risk, operating cost risk and commodity price risk is their stock in trade. The issue for states in designing their fiscal regime is, how much of this risk is the state willing to share?

A state could choose to take no risk of petroleum operations by selling to an IOC the land on which petroleum operations are to occur for a defined price, without any royalty or other future payment obligation. The state's share would be unaffected by exploration success or failure, oil price fluctuations, production rate fluctuations and changes to the cost environment. However, no state takes this approach to petroleum activities. Every government designs a fiscal system that will capture some of the economic rent of a successful petroleum project.

But the design of the fiscal system can affect how much of the risk of success or failure that the government is prepared to share with the IOC. For example, if a government receives a fixed royalty of 12.5%, the state does not share in the cost risk of petroleum operations: it will receive one-eighth of production, whether the IOCs operations are profitable or not. An IRR-based profit oil share will result in the government sharing all of the risks of the IOC's success, because it will receive a significant share of production only after the IOC has profited. Some states make it a strategic national goal to have a direct involvement in petroleum operations through the participation of a state oil company. This involves sharing most or all of the risks of petroleum operations. The extent to which a state bears the risk of success can have an impact on other features of the petroleum contract. If the state shares in the cost risk (for example, through a state oil company participation or a profit share), then the state may want a greater operational or approval role in the costs that the IOC plans to incur, such as a joint management committee. Here is how the various fiscal tools stack up for state risk sharing for exploration, production rate, price risk and cost risk:

- signature bonus: no risk
- production bonus: exploration risk only
- fixed royalty: exploration risk only
- sliding scale royalty: exploration risk, and some or all of production risk, price risk and cost risk (depending on the sliding scale factor)
- corporate income tax: full risk
- fixed profit share: full risk
- sliding scale profit share: exploration risk, and some or all of production risk, price risk and cost risk (depending on the sliding scale factor)
- state participation: no exploration risk; all other risk
- profit-based taxes: full risk

- other general taxes: varies
- service fee systems: full risk

Encouraging Initial Investment And Re-Investment

States typically are seeking to encourage IOCs to invest in petroleum exploration, so that oil & gas can be discovered and produced. The decision of the IOC on whether to invest is a function of the attractiveness of the geology in the block that is on offer, and the attractiveness of the fiscal regime. This issue needs to be analysed in two ways: initial investment (or 'stand-alone' investment) and re-investment.

Some fiscal regimes are better structured than others to make initial investment attractive. A big signature bonus is a disincentive to invest, because it requires the IOC to pay up front for the right to explore, before it knows if the block has commercial reserves. The funds that the IOC has available to conduct exploration are reduced; maybe the amount spent on the signature bonus could have been spent on an extra well that might have been a success. Conversely, a production sharing contract with a high cost oil limit means that the IOC can recover its exploration costs (including unsuccessful wells that precede a discovery well) before the state share of revenues becomes significant.

Some petroleum contracts will result in IOCs investing in a state for the first time, and they analyse their interest in doing so by assessing the attractiveness of the fiscal regime on a 'stand alone' basis. However, most petroleum investment that happens in the world is in activities by an IOC in a state where they already have petroleum operations, often in a different block. In such cases, the IOC will assess the fiscal regime on the basis of its overall impact on its existing and new investment. This is important because sometimes IOCs are able to deduct the costs of a new investment against the revenues and taxes paid on an existing field. This makes re-investment more attractive. An example might be useful here.

Example: If an IOC has petroleum revenue in a state on which it is paying income tax at 35%, and the cost of an exploration well is deductible in calculating income tax, then the after-tax cost to the IOC of drilling a new \$10,000,000 exploration well in that state is only \$6,500,000. While the state suffers a reduction in its tax revenue as a result, the incentive for the IOC to re-invest in that state is significant. Success often begets success, so the IOC is likely to develop a larger business in that state, generating more government take, and will prefer to re-invest there rather than looking abroad.

This kind of re-investment incentive happens when the fiscal regime is 'consolidated' rather than 'ring fenced'. Ring fencing was discussed in the previous chapter. Ring fencing tends to reduce the incentive to re-invest, while consolidation

tends to increase it.

The various fiscal tools have the following impact on investment and re-investment:

- signature bonus: disincentive to invest and re-invest (unless deductible against fiscal term)
- production bonus: neutral
- fixed royalty: disincentive to invest and re-invest
- sliding scale royalty: neutral on incentive to invest; reinvestment impact depends on ring fence treatment
- corporate income tax: neutral on incentive to invest; strong reinvestment incentive depending on ring fence treatment
- fixed profit share: neutral on incentive to invest; strong reinvestment incentive depending on ring fence treatment
- sliding scale profit share: neutral on incentive to invest; reinvestment impact depends on ring fence treatment
- state participation: disincentive to invest; reinvestment impact depends on whether state oil company is carried on the subsequent investment
- profit-based taxes: neutral on incentive to invest; reinvestment impact depends on ring fence treatment

State Participation

A state's right to participate in oil & gas operations is frequently used and has both socio-economic and fiscal impacts. Some of these fiscal impacts are not always clear, so further explanation is worthwhile.

State participation has the following results on the four strategic considerations:

- Changing Profitability: neutral
- Timing: neutral
- Risk: no exploration risk (where carried); all other risks
- Initial Investment and Re-investment: disincentive to invest; reinvestment impact depends on whether state oil company is carried on the subsequent investment

The state's share of profits will be the same as the IOC's share because the state oil company's participating interest share typically is a co-investment by the state oil company and the IOC. For the same reason, the timing of the state's share of revenues is neutral as well.

Except for a 'full equity' state participation, the state does not bear exploration

risk, because the typical state participation right is an option for the state to participate at the time of a commercial discovery. If exploration is unsuccessful, then the state does not participate, and the IOC bears all the cost of failure. If exploration is successful, then the state will elect to participate.

This is a very attractive feature for the state- it's a risk-free bet on exploration success. Some states like this so much that they seek to increase this as a feature of the fiscal regime. The problem is that, depending on the percentage of carried participation, it can have a seriously negative impact on the attractiveness of the initial investment by the IOC. Let's use a simple example to explain this.

Let's imagine that you are entering a casino to play roulette, and the owner offers you a deal. Admission to the casino is free if you'll agree to give to the owner five percent of every winning bet you make. You need to make a decision: are you a good enough gambler to be able to afford to give up five percent of your winning bets, while bearing all of the cost of your losing bets? Perhaps you are, and you enter the casino and play for the day. The next day, the owner offers a different deal: free admission to the casino costs fifty percent of every winning bet. Now your decision is quite different. Paying for all of your losing bets while giving up fifty percent of the winning bets is too risky; there's not enough reward left to justify the risk. It's time to find another casino.

State participation rights work in a similar way. The economic impact to the IOC of a carried participation affects what the economists call the 'maximum sustainable risk'. If you take away too much of the exploration incentive, it's simply not worth playing the game. This is why a carried interest for the state is a disincentive to invest, and the larger the carried interest, the greater the disincentive. It is also a disincentive to re-invest if the state oil company is also carried on the re-investment activities. Nevertheless, this is a fiscal feature that more states are adopting.

Solutions

Now that we have surveyed the strategic issues and the impact that various fiscal tools have on those strategies, let's look at some possible objectives that a state might have and analyse the how the fiscal tools should be used to attain those objectives. The following analysis is also useful for readers of a petroleum contract to assess the extent to which a particular petroleum contract is suitably designed for its stated objective.

Promoting Exploration

If a state wants to encourage exploration activity, the fiscal package should involve the following features:

- low or no signature bonus
- low rental during exploration phase
- full deductibility of exploration expenditures under corporate income tax
- high cost oil limit in production sharing contract
- avoid carried interests for state participation

Promoting Cost-Effective Operations

Some states prefer a profit-based taxation system that is progressive and back-end loaded. What they often find is a result where IOCs incur high costs. If a state wants to encourage cost-effective operations to maximize profits, the fiscal regime should:

- avoid IRR-based sliding scales
- avoid R-factor systems with high marginal tax rates on profit oil
- avoid uplifts where the IOC is entitled to a deduction of greater than 100% of any cost

Also, service contracts tend not to promote cost-effective operations, because the IOC has no financial incentive to minimize cost under most service fee structures.

Marginal Field Development

Some states need to manage production from marginal fields or petroleum basins that are mature. The following fiscal tools are appropriate:

- use sliding scale royalties based on production rates
- allow high depreciation rates for development costs
- allow full consolidation for corporate income tax
- avoid high fixed royalties
- allow high cost oil limits (or none at all)
- utilize IRR and R-factor systems

Gas Development

The economics of gas exploration and development tend to be less attractive than for oil. Development costs are typically much higher, and production prices are generally lower. However, many states treat both types of resource in the same way, and gas development is stunted. The following fiscal features can help:

- lower royalty for gas
- high depreciation rates for corporate income tax on gas pipelines and other facilities
- high cost gas limits, lower profit gas share for the state
- exempt gas projects from special taxes
- exempt gas projects from carried state participation

Alignment

When conducting petroleum operations, it should come as no surprise that IOCs tend to behave in a manner that is consistent with their economic interests as established by the fiscal regime in the petroleum contract. Therefore, it is important that the fiscal regime is designed so that it encourages IOCs to act in a manner which is consistent with the objectives of the state. Unfortunately, many states create fiscal regimes that encourage behaviour by IOCs that is inconsistent with what the state wants to achieve.

Service contracts are particularly challenging in this regard. States want more oil production at lower cost and higher prices. Yet service contracts tend to create structures with minimal incentive to the IOC to increase the production rate, and no incentive to keep costs low.

The same situation arises in other types of petroleum contracts where the fiscal regime is excessively progressive. This leads to distortions in IOC behaviour; there are examples where under certain conditions a petroleum project may be more profitable with higher costs than with lower costs, or the incentive to reduce costs is so minimal that the IOC tends not to do so.

Administration

Some fiscal tools call for greater administration resources than others. A fixed royalty tends to be fairly easy to administer; a fixed percentage of production is owed to the state. All that is required is a meter at the relevant delivery point to determine the state share. If the state does not take its share in kind at that point, then the IOC accounts to the state for the revenues it receives for that share.

Production sharing contracts tend to involve a higher degree of administration,

because the state needs to be concerned about costs. Authorising expenditures, accounting for costs and auditing IOC activities are now required.

State participation adds another layer of administration. The state oil company as a co-contractor now is also involved in approving activities and expenditures, accounting and auditing.

For states that have the technical, administrative and financial capacity to administer complex systems, these structures may make sense. For those states who do not, a better approach may be to keep administration simple.

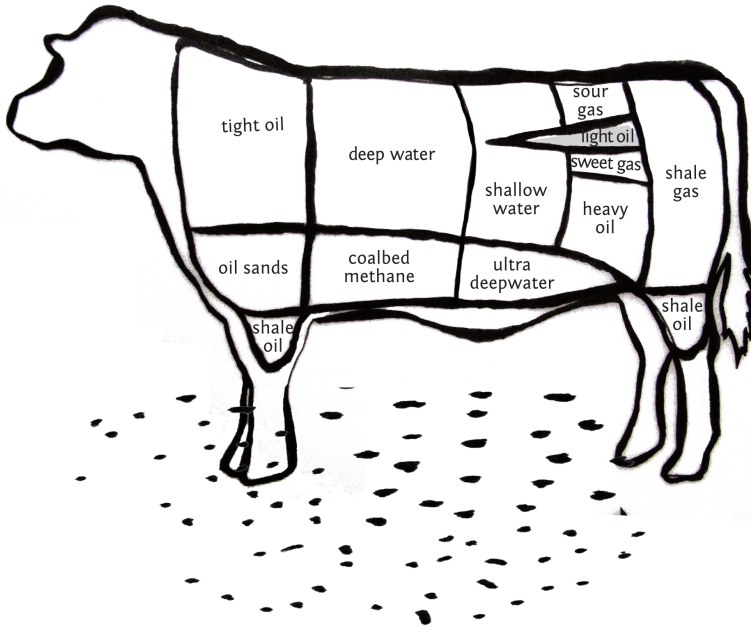
The Shift To Non-Conventional

There is a significant movement in the petroleum industry in the past decade that is resulting in growing focus on 'non-conventional' petroleum resources. This has the potential for significant change in petroleum regimes and contracts.

'Conventional' oil & gas is found in subsurface reservoirs of porous rock where petroleum is 'trapped' by the surrounding geology. As the world's conventional oil & gas resources are becoming more scarce, IOCs are focusing more on developing and producing oil & gas from 'non-conventional' (sometimes called 'unconventional') sources.

This means oil & gas produced or extracted using techniques other than the conventional methods. Non-conventional oil & gas production is a less efficient, more expensive process and often has greater environmental impacts than conventional oil & gas production.

One way to look at this shift to non-conventional is to compare conventional petroleum resources to the best parts of a cow.



Conventional oil & gas is like the tenderloin and sirloin- it's the 'steak' of the petroleum cow. It is comparatively easier and less expensive to find and develop, and it's the tastiest part too. However, just as we eat other parts of the cow, there are other parts of the petroleum cow that can produce oil & gas too. Shale gas, coalbed methane, oil sands, ultraheavy oil can also be produced.

However, just as the brisket and shank of a cow cannot be cooked like a steak, we need different 'recipes' to make the rest of the petroleum cow attractive. Different fiscal terms are required in order to make attractive these more costly, and often less valuable resources. Also, different tenure regimes are often required.

This is the trend in advanced petroleum states today. The province of Alberta, Canada has five different fiscal regimes to make investment attractive for its conventional oil & gas, oil sands, heavy oil, coalbed methane and shale resources. Other states are following this trend.

COMPARING RESULTS

As previous chapters have described, there is a wide range of fiscal tools and almost limitless ways of combining them, so that, in combination with other factors which are unique to each oil project such as costs of production and geological prospectivity, each contract seems to encompass what amounts to its own fiscal ecosystem.

The challenge in assessing and comparing them is that petroleum contracts each have different fiscal terms that combine:

- amounts paid before oil is discovered (signature bonus, rental)
- fixed payments made when oil is discovered and produced (production bonus)
- payments based on the quantity of production (fixed royalty)
- payments that adjust based on the quantity, type or price of production (sliding scale royalty)
- payments based on the profitability of the field (fixed profit oil and cost oil)
- payments that adjust based on the profitability of the field (sliding scale profit oil and other profit-based tools)
- payments that are based on the profitability of the IOC conducting the activity (corporate income tax)
- provisions that puts the state into the position comparable to that of an IOC (state participation)

As an example of the challenges involved, try to select which of the following options is best for the state, or best for the IOC:

Option A:

1. 5% Royalty
2. 30% Corporate Income Tax
3. Production Sharing of 40% in favor of the Government
4. State Participation of 15%
5. Withholding tax on services at 5%
6. Withholding tax on dividends at 5%
7. Withholding tax on interest at 5%
8. Signing Bonus \$20 million

Option B:

1. 35% Corporate Income Tax

2. Production Sharing 60% in favor of the Government
3. Signing Bonus \$30 million

Option C:

1. 51% State Participation
2. 25% Corporate Income Tax Rate
3. Signing bonus \$60 million

You may have already guessed that there is no right answer. Even though there are 8 ways in which the state can receive money under option A, it is not necessarily the best option. And what about those higher production shares and state participation in B and C? How do we know which one is more attractive, especially when combined with the other fiscal tools? It all depends on whether there is a discovery, and if so, the costs, prices and production rates of the project.

Yet there is an inevitable desire to find a way to compare different fiscal systems. As information flows increase around the global oil and gas industry, people naturally seek to know if they and their government are doing OK, and to boil that down into one single figure. How do you know if you're competitive?

The way this has traditionally been done is through a metric called 'government take', as described above. Government take is the percentage of the divisible income (lifetime project revenues minus lifetime project costs) the state will receive over the lifetime of the project.

Government Take Comparisons

Government take is so well understood that analysts produce charts showing the relative takes of over 100 countries round the world. In the map published in 2012 by Petroleum Economist (one of the sponsors of this book) and produced by petroleum economists Dr. Pedro van Meurs and Barry Rodgers, countries are ranked by government take, from Ireland (with a take of under 40%) to Iran, Libya and Iraq (where government take is over 90%). Does that mean that Ireland has established excessively generous terms and the Middle Eastern countries have done a better job? No, this difference can be explained quite simply: petroleum discoveries in Ireland are very small and investors are few, while Iran, Libya and Iraq have been blessed with some of the best petroleum endowments in the world, and IOCs are anxious to have an opportunity to explore there.

The principal reason that one country can have a very different government take than another is that it is a competitive system at an international level: a state that has good geology can demand tougher terms from IOCs.

But before we think everything has become easy and all we need is government

take, there are several limitations on the usefulness of it as a measure. One is that it is based on an assumed oil price. As we have seen, very few contracts remain neutral when the price of oil changes. Most are either progressive, meaning the government earns a higher percentage when profits go up, or regressive, meaning the reverse. Consequently, rankings may change under different price scenarios.

Second, the rate of return is against the expected total production out of a project - and yet that figure also changes over time. It is quite usual for projects to begin on the basis of a known amount of proven reserves in a contract area but for those reserve figures to go up during the lifetime of the project. This is because exploration is more successful once the local geology is understood, as well as the fact that there is more incentive to explore near existing wells because a route to market has already been built. So a project might start on the basis it was going to produce 50 million barrels and end up producing 70 million barrels. Or, conversely, there may be issues of reservoir management, or disruptions which cause production to decline faster than expected.

Third and most importantly, the government take is the estimate of what percentage of profit will be over the lifetime of the project. But that could be 20 years or more and few governments are indifferent to when they get the money. As we have seen in the previous chapter, the timing of receipt of the state's share of revenues varies from country to country.

This has led to the evolution of a different measure, the Effective Royalty Rate (ERR), which tries to work out the profit a government receives during any given accounting period. The ERR is often much lower than a government take statistic in the early years of a project because of cost recovery, the fact that the oil company is recovering large amounts of costs sunk into developing the oil fields in the first place.

Is The Take A Zero-Sum Game? Yes And No

Popular perception tends to see the split of money between a government and an IOC as a zero-sum game. The more I get, the less you do.

But it is important to realise that companies are mostly guided by different measures than 'contractor take'. One such measure is the Internal Rate of Return (IRR). The IRR is used to measure and compare the profitability of investments. The higher a project's IRR, the more desirable it is to undertake the project. Contractor take and IRR are very different calculations.

Example: Iraq's technical service agreements grant IOCs a service fee (after tax) of as little as \$1 per barrel, which with oil hovering around the \$100 per barrel level in the years through 2010-12 would be as little as one percent contractor take. And yet a

Deutsche Bank analysis suggested that companies could earn an Internal Rate of Return of between 10% and 20% in working on these projects because the agreements envisaged producing such large quantities of oil that costs will be recovered very quickly.

It is becoming more common for states to include progressive features in the fiscal regime of petroleum contracts to capture more of this rent. So in principle, government take and IRR could both rise in some circumstances. The zero sum game is not inevitable.

So far, so good. But there is another very important way in which governments and companies are often in intense zero sum competition over fiscal terms, because both of them are often interested in how much money they can get now - or as close to now as possible. This is the timing issue: will the state receive its share of government take early or late in the life of the project. For a country where oil is being produced by an IOC there is pressure to show results soon. In many cases, though, the need is also urgent and practical. Public services and civil service payrolls routinely depend on having money to spend, a syndrome which is heightened during elections and other political events. And yet the first years of the project are when a company will be anxious to recover its investment so that its' IRR improves.

Peer Group Assessment

Another factor that weighs against any simple metric is time and experience. By and large, governments start with low take because of uncertainty about their geological and petroleum endowment and increase it over time. The last few years suggest that the learning curve is speeding up. The Kurdistan Regional Government (KRG) of Iraq, for example, and Ghana are just two jurisdictions where the government has increased its take considerably in new negotiations within the space of five years, principally because they have been proven to be petroleum states.

So sometimes countries may need to ignore the reductiveness of comparing themselves through a single figure like government take, and define a peer group for themselves of other countries which they regard as similar for a variety of reasons - e.g. they are neighbours, or have similar kinds of 'prospectivity' - amounts of oil in the ground - and are at similar stages of production.

Is It All About The Money, Anyway?

This chapter has been all about numbers and money, and assumed that this is at the heart of the negotiations. We have seen, and will see again, that this is a short-sighted view to take for a state, which has many interests to reconcile in negotiating exploitation of its natural resources, not only money.

HOW BIG IS THE PIE?

In order to decide who gets what, you have to know how big the pie is. That's why every contract spends time laying out what oil and gas is worth in some detail. Knowing how much oil is produced and sold is crucial in determining the size of the pie as well. Getting a good idea of how big the pie is can be quite complicated for the following reasons:

- A barrel of oil is not a barrel of oil is not a barrel of oil. Some crude oil is worth considerably more than other oil, for either chemical or marketing reasons.
- A lot can happen on the way from the well head to the refinery or shipping terminal. Think of Nigeria where illegal tapping into the pipeline to divert crude on its way to the sea has become virtually institutionalised as its own economic sector.
- Sometimes companies have much more experience and access to the international markets which define the price of oil than governments. They could leave governments at a disadvantage in calculating how much they should be getting. This sometimes leads to the definition of two ways of pricing the oil, which can be categorized as **arm's length pricing** and **formula pricing**.
- Governments often want part of the crude oil for their own use. Companies want to sell as much of the output as possible for the highest price possible. This potential conflict of interest is dealt with in clauses mentioning what is sometimes known as **domestic market obligation**.
- Natural gas, often found with oil, throws complicates things, since these contracts have been designed with oil in mind.

Let's look at each of those in turn.

Different Grades Of Crude Oil

The quality (or 'grade') of crude oil can make as much as a 50% difference in its value on international markets. There are a host of chemical factors affect the value of oil, but there are two main variables: sweetness and heaviness.

The most valuable crude is '*light*' and '*sweet*'. Countries like Libya are lucky enough to have this type of crude. Legend has it that you could take the oil straight out of the ground and put it in the tank of your car and it would go, at least for a while. At the other end are grades of crude oil which are '*heavy*' and '*sour*', such as those produced by Iran and Venezuela.



Remember that crude oil can't itself be used for anything - first it needs to be refined into various products like petrol, diesel and butane.

The difference between high and low quality crude oils is in the amount of processing and refining needed to transform the raw material into usable products. The less refining needed, the cheaper it is to make the raw crude oil into a valuable product, which is why we consider it to be of a higher quality. The scale of 'sweet' to 'sour' refers to the amount of sulphur contained in the oil. Sweet crudes have a low sulphur content, sour crudes have a high sulphur content. As the sulphur has to be removed before anything useful can be made, sweet oil is much more valuable than sour oil. The range of 'light' and 'heavy' refers to the density of oil, which is measured using a scale developed by the American Petroleum Institute, called API gravity. The higher the API number, the lower the density, and the 'lighter' we say the crude is. 'Light' crudes can be refined, or distilled, into higher value products than 'heavy' crudes, so it is of higher quality. In the jargon, it has a better *distillate yield*. Half of a barrel of heavy oil might end up as tar, only useful for paving roads, with only a small quantity of petrol or gasoline that can be sold to car owners. There is more demand for products which can be made from light grades of crude oil, such as diesel and gasoline. See Ghana's example of this below.

EXCERPT FROM THE GHANA PETROLEUM AGREEMENT IN RESPECT OF THE DEEPWATER TANO CONTRACT AREA:

11.7 e - "If the quality of various Crude Oils produced from the Contract Area is different, segregated and sold separately, the Market Price shall be determined separately for each type sold and/or exported by Contractor only to the extent that the different quality grades remain segregated through to the point where they are sold, and if the grades of different quality are commingled into a common stream, Contractor and GNPC shall agree to an equitable methodology for assessing relative value for each grade of Crude Oil."

The Ghanaian clause above illustrates that the quality of crude oil could differ significantly even within one license area. One well may contain good quality crude, another well might contain less good quality crude. Ideally you need to keep track of how much of each type of oil went down the pipeline. But how? The contract will usually say that you either build infrastructure to keep them separate and agree a way to calculate the price for each, or you mix them and agree on a merged price.

Something Happened Along The Way?

Sometimes even how much oil has been produced can be open to dispute.

Contracts deal with this in clauses addressing the 'metering', or measuring, of the amount of oil at various stages in the production process.

EXCERPT FROM GHANA'S AGREEMENT WITH TULLOW:

11.1 - Crude Oil shall be metered or otherwise measured for quantity... for all purposes of this Agreement. Any Party may request that measurements and tests be done by an internationally recognised inspection company

The distance from a wellhead to a storage terminal is often hundreds, sometimes even thousands of kilometers. What if the company says they produced a million barrels of oil in July from that field, but the government says, wait a minute, only 950,000 barrels turned up at the port! At current market prices, five million dollars have gone missing.

The above-mentioned Ghana contract then goes on to state that although the government can order inspection at any time, at the company's expense, the company can claim back the expense if the tests show the oil in storage at the end of the line is the same as was stated in the company's records "*within acceptable tolerances*". It is not clear in the contract itself what level of 'tolerance' is acceptable. Companies that sell oil meters, which can cost hundreds of thousands of dollars, now guarantee accuracy to within 0.15% of total volume. The reason there would be any discrepancy at all relates to the previous section and different grades of crude oil. The terms 'light' and 'heavy' are literal, not figurative. So if you 'blend' several grades of crude oil with different physical weights it will be hard to achieve absolute accuracy even with modern technology.

The vulnerability of oil as a valuable commodity coming out of often poor and remote areas leads to emphasis being attached to another clause in contracts related to valuing petroleum: specifying the handover point, or point of valuation. Sometimes this is at the field itself, sometimes at the other end of the pipeline and sometimes into a storage tank, depending who controls it.

Selling The Crude: Arms Length And Formula Pricing

In many Production Sharing Contracts, it is the International Oil Companies (IOCs) who are responsible for selling the oil on international markets. Most big oil companies work at every stage from the wellhead to the petrol station and can therefore refine the crude themselves and then sell it at their gas stations. Besides that, they have good access to international markets for selling the crude. National oil companies typically don't, although some Middle Eastern producers with long histories of oil production feel very comfortable selling their own oil.

The agreements which govern most of Libyan production, for example, say that the IOCs have to accept a valuation of their share of oil based on what the Libyan state itself has been able to sell it for on international markets. Luckily for oil companies, the Libyan state can usually sell the crude for the same price the IOCs would sell it for.

EXCERPT FROM EPSA IV MODEL AGREEMENT:

12.3.1 - For the purposes of determining the value of Crude Oil received by Second Party, the monthly weighted arithmetic average of the market price realized by the First Party on the world market (in arms length trading between non-Affiliates) for the same Crude Oil or similar crude shall be applied.

Indonesia's contracts envisage a more intermediate situation. Indonesia is an established oil producer and its state owned company Pertamina has a sales and marketing division. On the other hand, the agreement from 1998 with Unocal Ganal, says the share of the oil of Pertamina will be valued at whatever the contractor could sell it for on world markets. But if Pertamina is able to find a better price on the market itself, then Unocal has to either meet the price or allow Pertamina to market the oil itself. It looks like the contractor will do most of the selling, but Pertamina will keep them on their toes.

In new petroleum producing countries, the company will typically do most of the selling. Therefore governments sometimes find it useful to include a clause in the contract that specifies the way of calculating the price of their crude oil. This is known as a **formula pricing**.

EXCERPT FROM AFGHANISTAN'S 2011 CONTRACT WITH THE CHINESE NATIONAL COMPANY CNPC:

11.1 - The Formula Price for the Liquid Hydrocarbons produced and saved from any Field in the Contract Area in any Month shall be determined in accordance with the following formula: $P = U + (B - U) * (1 + 0.15139 * A_{P-B} - 0.1434 * S_{P-B} - T - D)$

Ouch! Don't worry, it's not necessary to understand all of that. Here's what the letters mean:

- P = Price of the crude produced from this field
- B = Price of Brent, a crude oil that comes from the North Sea
- U = Price of Urals, a crude oil from Russia
- A_{P-B} = references to the grade of Afghan crude, as measured on the API Index
- the S, T and D are not really important for the purpose of this example

So the formula basically says that the parties agree to price this crude oil partly by its API grade and partly against whatever Brent and Urals oil sells for on world markets. The higher the quality of the Afghan crude compared to the quality of Brent and Urals, the higher it is priced.

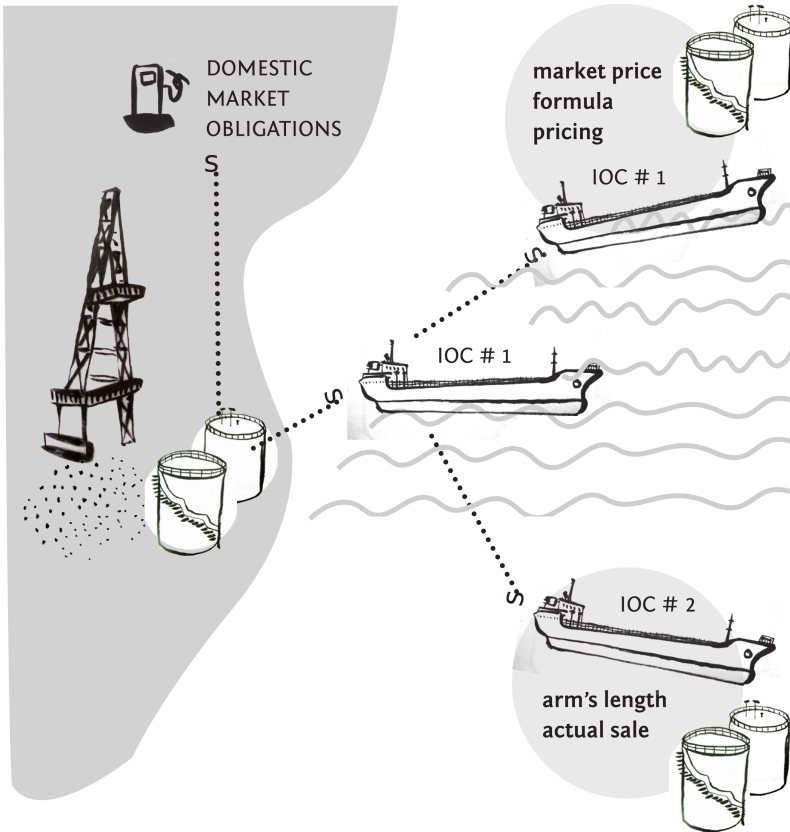
Brent and Urals in this case act as '*benchmark crudes*'. There are thousands of grades of crude oil around the world and in many cases they get benchmarked against Brent, Urals, or the likes. You may never see the actual price of each of the existing crudes. Their price is referred to as simply "Brent minus \$7.15", for example, or "Urals plus \$3.42".

This Afghan agreement assumes that the contractor will sell the oil. But it provides an assurance to the government that there is a baseline value to the oil that the government can work if needed. There are dozens of accounting firms or petroleum economists who do understand the formula above, and will be able to tell the government the amount of money the crude should have been sold for at each point in time.

Using an "**arm's length**" standard is another way the parties to the contract sometimes deal with calculating the price against which the crude should be sold. Transfer pricing may happen when, for example, a subsidiary company buys or sells crude that is priced artificially high or low to or from its parent company. Companies will want to do that for accounting purposes, so that they can make sure that the highest profit is booked in the jurisdiction with the lowest tax on profits. By

including a clause requiring arm's length pricing of the crude the government makes sure that transfer pricing cannot occur. By referring to an arm's length standard in the contract, the parties are acknowledging that related party transactions occur and that is fine, so long as the country still gets a fair price for the oil sold.

Oil might be valued at the price it is actually bought if it is being sold to non-affiliates of the selling company, also referred to as independent third parties. In this case, the parties might use this price since it should represent an arm's-length fair market price for the crude.



How oil is valued

Domestic Market Obligation

Many contracts include a provision that allows the government, or national companies, to buy the crude one way or another before it is exported. This is known as **Domestic Market Obligation**. Take the example from Afghanistan:

EXCERPT FROM THE AFGHAN CONTRACT:

12.1 - The Contractor shall give preference to purchases by Afghan nationals and companies, provided that such purchases are at prices that are not less than the price for Arms Length sales...

Generally speaking, companies can be nervous of domestic market obligations. This is because the obligation is a restriction on how much oil and gas can be sold on world markets against international prices. Domestic market obligations can sometimes result in the selling of crude to the state against at a price below international prices, thereby negatively affecting company revenues. States on the other hand often regard domestic market obligation clauses as very valuable because they want to ensure that its own economy has enough crude when it needs it. In order to reassure the contractor that prices won't drop too much compared to international market prices, a provision ensuring arm's length pricing is included.

Example: Indonesia's DMO, is notorious among oil companies since it states that, from a point five years into production, the company has to sell a quarter of the oil it produces at only a quarter of the world market price.

Natural Gas Is Not Easy

Natural gas is often found with oil. For a long time there was no perceived commercial value for gas, up until a couple of decades ago. There is one key difference between oil and gas: their transportation. How do you get a lot of (potentially flammable) gas from one place to another? It's a lot harder than transporting liquid oil, which can be loaded into trucks or tankers. Gas can be transported through pipelines, or it can be liquefied and transported in similar ways as petroleum using special vessels and trucks. Unfortunately the liquification process is very expensive. This means that even though perceptions have changed about the commercial value of gas, there are still many situations in which it is found with oil, or 'associated' as the jargon has it, but it is not captured to sell. In many cases, the gas is 'flared' into the air, or used to increase or decrease pressure in the well to get the crude out better.

Petroleum clauses typically require the contractor to assess how much gas the field contains and assess if and how it will use the gas, for example by building a pipeline or a power plant. So the discovery of gas can complicate the field development plan and might delay the start of production. Contracts sometimes also have language on flaring and its potential consequences for the environment and safety. Prices for gas are determined locally and no international gas prices exist.

ECONOMIC DEVELOPMENT



HISTORY AND EVOLUTION

As discussed earlier, oil and gas together constitute the largest source of energy for the modern world. However, in their natural state, they are only found in certain parts of the world. In the early years the demand in developed countries far exceeded local supplies, while in developing countries the supply far exceeded the demand. In addition, oil producing developing countries did not have the infrastructure for refining the crude, nor the markets for absorbing the refined products.

As a result, the structure of the industry was largely shaped by supply and demand conditions: oil producing developing countries mainly exported crude to the larger developed countries' markets, where processing took place and the final products were sold. The contractual terms mainly focused on fiscal terms and financial gains, which reflected this preference for obtaining revenues from royalties and taxes rather than production sharing.

Broadening Objectives

In recent years, populations of many oil producing states have been demanding a greater contribution from the natural resource sector to the welfare and the development of their countries. Many (new) developing oil producing states are starting to realise that the petroleum sector can contribute much more to their overall development than solely through revenues.

EXCERPT FROM THE PREAMBLE OF THE 2012 KURDISTAN REGIONAL GOVERNMENT PSC:

"A. The Government has determined that this Contract will facilitate the development of the petroleum wealth of the Kurdistan Region in a way that achieves the highest benefit to the people of the Kurdistan Region and Iraq and will promote the economic development of the Kurdistan Region and Iraq and the social welfare of the people of the Kurdistan Region and Iraq".

Generally speaking, the contractual provisions reflect these objectives, for example by focusing on increasing the participation of the local workforce, and using local goods and service companies in the petroleum sector in order to increase employment and to build experience and competitiveness in the long run. These provisions are often referred to as "**local content**" and will be elaborated

later.

How petroleum activities could affect social environments



Global Initiatives

This can be seen through a plethora of recent regional and global initiatives calling for a greater role of the petroleum industry to stimulate national economic development. For instance, at a global level the Natural Resource Charter with its twelve precepts provides a set of principles for governments and societies on how to best harness the opportunities created by extractive resources to contribute to the country's overall development. These precepts are underlined by illustrative case studies such as Norway's path to inclusive and sustainable development through a comprehensive resource development strategy and institutions promoting democracy and education for long term development and competitiveness.

An example of such an initiative at the regional level in the mining sector is the Africa Mining Vision. This provides a continent-wide strategy aimed at advancing the contribution of mining to economic development. They do this by creating refining capacity where economically viable, strategically linking infrastructure

created in the oil and gas sector to other sectors of the economy, building the capacity of the local workforce and local companies to participate in the petroleum sector, and by spending the revenues on strategic sectors that spur long-term growth and competitiveness. This requires a lot of government capacity in terms of strategic planning, active involvement in implementation of the plans, and the monitoring progress.

Another tendency perhaps reflected in the contracts, or at least in the negotiation rounds, is the desire of producing governments no longer just want to export their petroleum but to retain an increasing part of it to help satisfy their national energy demand, and to add economic value by refining the crude in the host-country if economically viable. Most contracts have a provision stating that the Government can require the oil companies to supply a proportion of their petroleum to the State in certain circumstances, or require national energy demand to be fulfilled first before exporting crude is permitted. Many new petroleum producing countries are discussing whether or not it is economically viable to refine the crude before exporting it.

Regional Cooperation

Countries are increasingly linking up or working together with their neighbours. In the future oil contracts might be used to stimulate and take advantage of regional trading blocks which will create larger markets, especially amongst countries with smaller economies and labour forces. This would expand the potential market for local content from one country to several more, which could stimulate individual countries to specialize in those goods and services they produce or develop most productively. It could also create regional infrastructure linkages, or it might be an argument to develop refining capacity in one country if the crude supplied by its neighbouring countries can be refined there as well. Implementation of such plans will require proper regional planning and the cooperation of governments.

Oil for infrastructure deals are a recent phenomenon to spur economic development and will be discussed in a later chapter. The same holds true for local content as well as the possible non-fiscal benefits through state owned petroleum companies. The so-called domestic market obligation is another tool that can be mentioned here. It is mentioned in a number of contracts requiring the IOC to sell some of the exploited petroleum in the host country often constituting a crucial contribution to the national to energy supply. This provision has been dealt with earlier in the chapter "How big is the pie?".

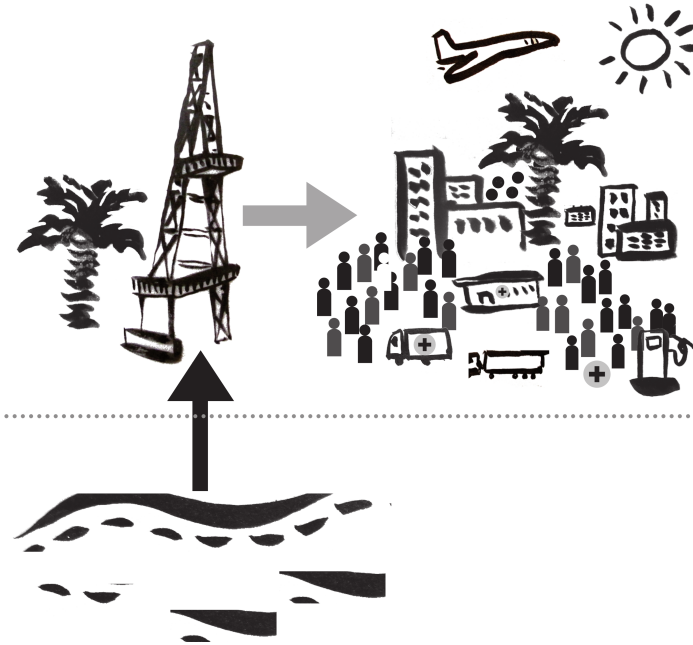
OIL FOR INFRASTRUCTURE

A new phenomenon is the exchange of oil for infrastructure. This means that the host country gives up some parts of traditional taxes such as royalties, withholding taxes, corporate taxes etc. in exchange for physical works in the form of building roads, railways, telecommunications or airports. Chinese investors, usually with backing from their government, have led this movement.

Unfortunately, very little information is available on the details of the provisions of agreements covering this type of deals. Through these deals, the government is able to provide its citizens with major infrastructure works in a short period of time, sometimes far before petroleum production starts. This can be an important reason for agreeing to an oil for infrastructure deal, especially when elections are on their way. In addition, if the infrastructure is strategically built, it can enhance the economic development of the country by connecting markets and reducing transportation costs.

Repayment of the debt for building the infrastructure is not made from earned income but from potential earnings. However, the way in which these potential earnings are calculated and the way in which any differences between project petroleum prices and actual ones are incorporated is not clear. From the government's point of view, a comparison could be made with using a credit card while the interest rate for pay-back is unknown.

Assets under the ground give rise to investments above ground



In sum, the oil for infrastructure displays the following characteristics:

- It is a visible demonstration of the transformation of assets in the ground to investments above the ground and one that can yield benefits for future generations who will be able to use the infrastructure built. However, the government must ensure that the quality of works is up to standards so that the infrastructure will last for a while.
- The speed with which the infrastructure is produced reduces the cost to the home country compared to the costs normally associated with developing a large infrastructure project. Usually funds need to be mobilized and part of the contract might go to waste due to corrupt practices. However, the terms of the agreement must include standards and deadlines as well as sanctions in case the work is of poor quality or not delivered on time.

- The host country must calculate carefully the likely projections and long term trends for the petroleum reserve against which the infrastructure work is 'mortgaged' and obtain as much detail as possible on its size, accessibility, and quality to be sure it is getting a fair deal. Differences between actual and predicted future crude prices and the effect on the value of the deal should be included as well.
- The government should make sure that feasibility studies as well as environmental and social impact assessments are conducted for the work, as they would be if the government had procured the work itself.

THE ROLE OF THE NATIONAL OIL COMPANY

The chapter "The Fiscal Toolkit" in this book deals with state participation by a state oil company (also known as a national oil company, or NOC) as one of the fiscal tools a state can use for sharing the profits of an oil and gas project. However, a state rarely establishes a state oil company merely to increase its share of the pie. A state oil company may be a vehicle to help deliver other, broader development goals. The state may see the establishment of a state oil and gas company as a means to create local employment and acquiring technical know-how on the oil and gas sector.

There are many examples of state oil companies: Saudi Aramco, Statoil, Petronas, Petrobras and CNOOC to name a few. State oil companies come in all shapes and sizes and are established with differing objectives in mind. There is a significant amount of literature on the pros and cons of pursuing national development goals through a state oil company. The purpose of this chapter is to show that state oil companies may be a vehicle through which states can pursue other benefits than merely financial ones.

Possible Non-Fiscal Benefits

State participation does, in some sense, change the nature of the relationship between the state and its contractor partners from 'state-contractor' to 'contractor - contractor'. State participation creates an opportunity for the state oil company to operate on a more equal footing with the international oil companies. In oil countries that have not had oil for very long, and with more recently established NOC's, it is likely that the state's participation under the petroleum contract will be of a minority share, and that the NOC will not be the operator. However, the NOC should be a party to any joint operating agreement which will set out how petroleum operations should be conducted between the contractor parties.

Such contracts have their own governance arrangements and are discussed in the section: The Actors and the Script. As a participant in these arrangements the NOC may have greater visibility of and an opportunity to scrutinise decisions relating to the conduct of petroleum operations. It can provide information on the petroleum operations that would not otherwise be available. To the extent that the state's interest is not "carried" but it is paying its share of costs, the state has "skin in the game" which may alter its perspective and provide incentives to find and produce oil. So some of the incentives of the government and oil companies are better aligned if the state oil company participates. Other factors, such as cutting costs on

environmental protection by the oil companies, might not be in the interest of the state.

State participation in an oil and gas development via a NOC may also provide the NOC with opportunities to involve its personnel in the conduct of petroleum operations through secondments to the operator and/or through participation in training programmes that the operator has in place for its own employees. This is often specified in the contract under provisions about local content and/or training. This is aimed at provide some form of knowledge transfer and capacity building. More ambitious arrangements may involve personnel from a NOC working alongside their international oil company counterparts and "learning by doing". Ultimately, the NOC may acquire the ability to operate both within its own jurisdiction and abroad.

The creation and development of a NOC as the vehicle for state participation also provides employment opportunities within the NOC and the ability to drive greater "local content" in terms of directing purchase of local goods and services. See the following chapter, 'Employment, Procurement and Social Welfare' for further information.

Possible Disadvantages

One potential disadvantage of state participation is that the investment required by the state to participate in the petroleum project is money that could have been spent on other things. From a national economic development perspective, the investment in state participation and an NOC needs to be weighed against the advantages of putting that investment elsewhere in the economy.

The second potential disadvantage is that state participation through an NOC may complicate the relationship of the state and its contractors. In a number of countries, the NOC may be playing the role of a commercial enterprise to be regulated by the state and, at the same time, be the body that is entrusted with regulating the petroleum sector. There is a clear danger of a conflict of interest in this scenario. Even where the regulatory function is carried out by the government and the Ministry of Petroleum and not by the NOC, the mere existence of a NOC alongside the regulator can create the possibility for "turf wars".

EMPLOYMENT, PROCUREMENT AND SOCIAL WELFARE

Local content is a term which is increasingly used in petroleum contracts ensuring that the company is hiring local labour and procuring local goods and services from the host country instead of using imported goods and services or foreign workers.

Instead of using the term local content, a handful of contracts refer to '**national content**', because the term 'local content' often brings to mind a much more localized geographical area, i.e. the project-affected area instead of the host-country in general. To cut a long story short, the terms are used inter-changeably and cover the same issues.

Often it is assumed that social welfare issues or corporate social responsibility (CSR) considerations are also included in local content. This is not the case. Social welfare is dealt with at the end of this chapter.

Example: Several countries have developed local content policies and laws. For example, Ghana has a Local Content and Local Participation Policy (2010) specific to the petroleum sector. Kazakhstan instead takes a more general approach to local content requirements by including it in its Procurement Law. Brazil and Nigeria have also developed local content legislation.

Many countries do not, or not only, address local content issues in legislation, but address them directly in petroleum contracts. Even if local content legislation does exist, local content is often still addressed in the contract with more specificity.

However, not all contracts include local content sections, even if there is no local content law in place. Contracts generally do not discuss local content in more detail than a couple of sentences. Below, you will find a brief outline about the general character on local content provisions.

Use Of Local Labour

The requirement to use local labour can be challenging in countries where high-level education is minimal and where the petroleum sector is relatively new. An additional complication is that compared to other sectors (i.e. agriculture, manufacturing or textile industry), petroleum operations are not labour intensive industries. Therefore, often you will find a phrase like "... where qualified personnel is available..." or the requirement to provide training with the aim of employing people in the future. This is illustrated by the example below.

EXCERPT FROM THE AFGHAN AMU DARYA BASIN CONTRACT

20.1 - "The Contractor agrees to as far as possible train and employ qualified Afghan nationals ... and ... will undertake the schooling and training ... for staff positions, including administrative and executive management positions. The Contractor will require its contractors and subcontractors to do the same. (...)."

With this type of general language the challenge arises on how to monitor if company has complied with the obligation. Some contracts therefore specify a percentage of required local personnel the company will need to employ. This is sometimes broken down per job category, and sometimes the percentage increases over time. This can be problematic given that the percentages might have been chosen arbitrarily. It is often difficult to have a good sense of what percentage is realistic and achievable. Another issue is that contracts very often do not specify the base which will be used to calculate the percentage. Are talking about a percentage of part-time or full-time employees, full-time equivalents, or would a general headcount suffice?

Example: In Brazil, until the 1990s the state-owned company Petrobras had a monopoly over the petroleum sector in Brazil. It was subsequently privatised and from then onwards it competed with international petroleum companies for petroleum blocks in Brazil. But with international petroleum companies the number of foreign employees increased, and the government of Brazil realized that Petrobras had always hired local employees and contracted local goods and service providers. So the government decided that international petroleum companies should contract and employ the same percentage of local content as Petrobras had done in the past. This system worked well up until the point that the demand for Brazilian employees and goods and services became higher than the supply. The international petroleum companies could not comply with both their work obligations as well as their local content requirements. As a response, the Brazilian regulator temporarily relaxed the requirements.

In addition, stating specific job categories such as skilled, unskilled, technical, administrative, clerical, management, etc. can lead to differences in interpretation of what these mean and the qualifications needed. Definitions, interpretations and requirements for these job categories often differ between different parts of the world.

Some contracts do not further expand on the local labour requirements to address how compliance will be monitored. The result often is that in this case the

requirement will not be monitored at all. Some contracts do have monitoring provisions, in which the company is required to submit a local content or employment plan, which then requires government approval. Sometimes the contract requires the employment plan to be included in the Annual Work Plan.

EXCERPT FROM THE GHANA PETROLEUM AGREEMENT IN RESPECT OF THE DEEPWATER TANO CONTRACT AREA:

21 - "... Contractor shall submit to GNPC [the NOC] an employment plan with number of persons and the required professions and technical capabilities prior to the performance of Petroleum Operations."

Training Of Nationals

Many contracts also address the requirement for the company to train nationals in one or more ways outlined below:

- train nationals in order to employ them directly in the future
- train existing employees to take on jobs that require higher qualifications and more skills
- train employees of the national petroleum company

Sometimes a fund is set up into which the company disburses an agreed amount of money that is used for training purposes. Many times it then remains unclear from the contract who is responsible for conducting the training and managing the fund. Sometimes the company is required to transfer funds to the national petroleum company for training purposes, implying that the national petroleum company is responsible for conducting the training. In some cases in which the company is responsible for conducting training, it is required to submit a training program for approval. Some examples are given below:

EXCERPT FROM INDONESIA'S PRODUCTION SHARING CONTRACT FOR THE GANAL BLOCK:

12 - " (...) after commercial production commences the Contractor will undertake the schooling, and training, of Indonesian personnel for labor and staff positions including administrative and executive management positions. The Contractor shall also pay for costs and expenses for a program to train Pertamina's [the NOC] personnel. Such costs and expenses shall be included in Operating Costs."

EXCERPT FROM AFGHANISTAN'S PRODUCTION SHARING CONTRACT FOR THE AMU DARYA BASIN:

20.2 - "The contractor shall be required to establish a programme ... to train personnel of the Ministry to undertake skilled and technical jobs in Hydrocarbons Operations. Such programme shall include provisions for involving representatives of the Ministry in the preparation of the Work Programmes and Work Programme Budgets." The contract continues saying that - in order to pay for the training - the contractor has to spend fifty thousand US\$ in the first year, and this amount will be increased by 5000 US\$ annually in the years thereafter. Training costs shall be recoverable. A brief training program with log frame for implementation is included in the appendix of the contract.

Use Of Goods And Services

The goal of using local goods and services in the petroleum sector is aimed at stimulating the local economy and creating international competitiveness in the long run. It is meant for local companies to gain skills and experience.

The way in which requirements for the use of local goods and services are usually framed in contracts is along the following lines: the company has to give preference to local goods and services, provided that these are similar to imported goods and services in quality and price. This is illustrated by the following examples:

EXCERPT FROM EAST TIMOR'S PRODUCTION SHARING CONTRACT FOR AREA A

21.1 - "... the Contractors shall draw to the attention of suppliers based in Timor-Leste, in such manner as the Ministry agrees, all opportunities for the provision of goods and services for Petroleum Operations."

EXCERPT FROM AFGHANISTAN'S AMU DARYA BASIN PRODUCTION SHARING CONTRACT

21.1 - "...the Contractor shall give preference to goods that are produced or available in Afghanistan and services that are rendered by Afghan nationals and companies, provided that such goods and services are similar in quality, quantity and price to imported foreign goods and services and available at the time."

EXCERPT FROM THE GHANA-TULLOW AGREEMENT:

20.1 - "In the acquisition of plant, equipment, services and supplies ... Contractor shall give preference to materials, services and products produced in Ghana ... if [they] ... meet standards generally acceptable to international oil and gas companies and supplied at prices, grades, quantities, delivery dates and other commercial terms equivalent to or more favourable than those at which [they] ... can be supplied from outside Ghana."

These clauses can be challenging in countries new to the petroleum sector and in countries where the manufacturing and services sectors are underdeveloped and not competitive. In these cases, goods and services might not be available at all, or if they are available they might cost a lot more, or it will take more time to deliver them, which can have implications for the costs and delivery time of the project. Some contracts allow the local goods and services to be a bit more expensive than the imported goods by a certain percentage (which is usually 10 - 15%). Other contracts refer to applying arm's length transactions in order to compare true and actual market values. Two examples are given below:

EXCERPT FROM AFGHANISTAN'S PRODUCTION SHARING CONTRACT FOR THE AMU DARYA BASIN:

21.2 - "Locally produced or available equipment, materials and supplies shall be deemed equal in price to imported items if the local cost of such locally produced or available items at the Contractor's operating base in Afghanistan is not more than fifteen percent (15%) higher than the cost of such imported items before Customs duties but after transportation and insurance costs have been added."

EXCERPT FROM THE GHANA-TULLOW AGREEMENT:

20.2 - "... price comparisons shall be made on a c.i.f [Cost, Insurance and Freight] Accra delivered basis."

But most contracts do not include these price specifications, nor do they specify what efforts the company should make to find suitable local goods and service providers. The government or the national petroleum company could play an important role here. For instance, some governments provide the company with a list of qualified local goods and service providers and the IOC is only allowed to contract companies included on the list.

Example: In Brazil, the contract does include the obligation of the contractor to "keep itself updated about Brazilian Suppliers capable of meeting supply needs, through trade associations, trade unions or other informed sources" while at the same time, the petroleum sector regulator registers 'certifiers', i.e. companies that provide certificates to local goods and service providers in order for them to be able to participate in the supply chain for the industry. Petroleum companies are only allowed to procure from certified suppliers. Further, some contracts specify a target in the form of a percentage for procuring local goods and services. For example, in Libya the operator is required to spend 50% of the approved budget on local goods and services.

Another issue arises with the definition of 'local' or 'national' goods and service providers. When is a company considered to be a national company? Is it when its shareholders are from the host-country? Is it when it has an office, or its headquarters in the host-country? Is it when the members of its board of directors

were born in the host-country, or should the majority of the workforce be from the host-country? Is it when the goods and services are actually produced in the host-country? Contracts usually do not define what 'local' or 'national' means, which might create differences in interpretation of the term to the parties to the contract.

Example: In Kazakhstan the term 'national' is clearly specified. A company with more than 50% foreign shareholding is considered as foreign and therefore excluded from participation in public procurement tenders, unless it fulfils all of the following criteria making it a 'national producer':

- *the company is resident of Kazakhstan*
- *the company produces finished products in Kazakhstan*
- *no less than 85% of its employees are of Kazakhstan nationality*

In Libya the contract specifies that the contractor is obliged to procure goods and services 'available' locally, which loosens the definition substantively as it does not require the goods to be produced in Libya, nor does it require Libyan ownership of the company that produces the goods and services. In Brazil, only the 'value added' to the good or service in Brazil counts as a contribution to national content.

Some contracts require local content or local procurement plans to be developed by the company, approved by the government, and in some cases included in the company's annual work plan. This way the government can better monitor and oversee what efforts the company is making to comply with the local contract provisions. An example is Afghanistan:

EXCERPT FROM AFGHANISTAN'S PRODUCTION SHARING CONTRACT FOR THE AMU DARYA BASIN

21.1 - "The Contractor shall, upon request of the Ministry, develop local preference targets and specific plans to meet such requests. Such plans shall be provided as part of the Contractor's Work Program to be approved by the Ministry ..."

Very few contracts specify the consequences for not adhering to local content clauses. This means that a breach of local content requirements will be dealt with in similar ways as other breaches of the contract. An example of a contract that does include a clause on the consequences of breaching local content requirements is given below.

EXCERPT FROM THE BRAZIL MODEL CONTRACT:

20.7 - If the relevant percentages are not achieved, the Concessionaire shall pay an "amount equal to 2 (two) times the value of the purchases from Brazilian Suppliers that would have been required to achieve the required Percentage."

This Brazil clause has not always been effective in serving its purpose. For example, an international petroleum company deliberately including higher local content rates in its bidding documents than it could realistically achieve, resulted in the company winning the bid but failing to achieve its local content requirement. The company was prepared to pay the resulting fine, which compared to its profits from the field was a relatively small amount to pay.

Including provisions requiring the procurement of local goods and service companies does not mean that this automatically leads to a contribution to economic development or the competitiveness of the country. In Nigeria the local content requirements of partnering with a Nigerian company have led to corruption and the creation of shell companies. Effective local content implementation requires lots of planning, implementation and monitoring efforts of the government.

Social Welfare

As mentioned before, social welfare is not included in the term 'local content'. In fact, very few contracts include clauses on social welfare. Social welfare clauses refer to efforts companies take in order to provide benefits to communities affected by their petroleum operations. The relationship between companies and the society in which they operate is a critical factor in their ability to continue to operate effectively. This is sometimes called the company's 'social license to operate'.

Most companies address social welfare issues in their voluntary corporate social responsibility (CSR) programs. Social welfare issues are increasingly covered under national and international law. There are also numerous good practice and standards in the area of corporate social responsibility, such as the International Organization for Standardization's (ISO) guidelines 26000 on social responsibility and the Social Responsibility Working Group of the Global Oil and Gas Industry Association for Environmental and Social Issues (IPIECA). These provide good practice on human rights, social impact assessments and community outreach. The IFC Performance Standards include standards on engaging with indigenous peoples, social impacts, and cultural heritage, for example, and sometimes social welfare is taken up in the contract.

Example: The Production Sharing Agreement of Liberia at Clause 29.3 includes language on social welfare programmes although it does not define what 'social welfare' means exactly. The contract requires the company to provide specific amounts of funding for social welfare programs. The expenses are recoverable costs and the social welfare programs to be implemented need to be mutually agreed upon by the state and the contractor.

Example: In Pakistan petroleum contracts, the company is required to allocate minimum amounts of expenditure on social welfare programs during the exploration and production phases. The funds need to be spent to 'give lasting benefit to the communities', and any programs need to be agreed with the local community.

ENVIRONMENTAL, HEALTH & SAFETY & SOCIAL ISSUES



IT'S IMPORTANT ISN'T IT?

How do petroleum contracts address concerns relating to the potential environmental and social impacts arising from the conduct of petroleum operations and the need to conduct such operations in a safe manner with regard to employees, the environment and local communities?

Perhaps surprisingly given the importance of these issues, petroleum contracts often do not deal with them in any great detail. This reflects the subsidiary importance historically attached to these issues when compared with the core concerns of finding and monetising petroleum. As a recognition of the importance of social and environmental issues in an overall sustainable development context has grown, so has an observable trend for petroleum contracts to address them with greater specificity.

Social and environmental issues, to the extent that they are addressed, are often lumped together under the rubric of "Environment, Health and Safety" or just "Environment". This means that the health and safety and social impact provisions, if they exist, may be difficult to locate in the contract. In part, this reflects the reality that, rightly or not, environmental concerns get significantly greater attention in petroleum contracts than concerns relating to health and safety and social impacts.

The field of social impacts is an emerging area. Such impacts include, for example, increases in the price of local goods and services, immigration into the project area causing pressure on local public services and the spread of infectious diseases, resettlement and compensation, potential human rights implications, impacts on livelihood-generating sectors such as fisheries and agriculture and particular impacts on indigenous peoples and vulnerable groups. So far there are currently few examples of petroleum contracts dealing explicitly with social impacts.

Whilst the petroleum contract may not contain extensive provisions in relation to these issues, all hope is not lost. One has to look also at laws and regulations that contain rules relating to the environment and health and safety to get a full picture of the obligations on an oil company in these areas. Sometimes the applicable environmental law requires attention to be paid to potential social impacts of the project. International standards and good practice usually do include social issues.

Indirectly Applicable Clauses

There are several provisions in petroleum contracts that indirectly address social, environmental and health & safety issues. For example, at a minimum the contract will require petroleum operations to be conducted in accordance with applicable laws and accepted industry standards or practices. There is usually a specific provision designed to pre-empt any harm that may be caused by petroleum operations by assessing what impacts such operations may have and establishing a baseline against which actual impacts can be measured (such as requirements for environmental (and social) impact assessments, baseline studies and requirements to obtain necessary environmental approvals and permits).

There should then be a provision designed to ensure that, where harm arises, oil companies take responsibility for such harm and are able to meet the costs of mitigating such harm, including requirements for insurance and allocation of liability. In most contracts there is also a provision designed to ensure that, at the end of petroleum operations, the environment is, so far as possible, returned to the state it was in before petroleum operations started, which is referred to as "decommissioning" or abandonment".

How petroleum contracts address these four areas is dealt with in more detail in the following four chapters of this section. In relation to the requirement to comply with applicable laws, whether or not this expressly refers to laws relating to the environment, it will require that the oil company conducts petroleum operations in accordance with environmental laws and regulations to the extent that they are relevant to such operations. The question as to whether this will ensure adequate protection for the environment will then depend solely on whether the country in which the oil company is operating has in place suitable environmental laws and regulations and the capacity to monitor and enforce compliance with them.

Whilst the obligation to comply with laws is relatively straightforward, the requirement to comply with "industry standards" is more challenging, since what constitutes industry standards is a question that does not have a simple or single answer. Sometimes the contract may try to define the obligation to comply with industry standards at length. Two examples of this are the Iraqi model form Technical Service Contract and the 2012 Model PSC of the Government of the Kurdistan Region of Iraq. The Iraqi model form TSC requires the oil company to:

EXCERPT FROM IRAQI MODEL TECHNICAL SERVICE CONTRACT:

41.1(a) - "adopt **Best International Petroleum Practices** in conducting and monitoring is Petroleum Operations....."

To find out what exactly is meant by **Best International Petroleum Practices**, we go back up to the definitions at the start of the contract to find:

EXCERPT FROM IRAQI MODEL FORM TSC:

"Best International Petroleum Practices means all those uses and practices that are, at the time in question, generally accepted in the international petroleum industry as being good, safe, economical, environmentally sound and efficient in exploring for, developing, producing, processing and transporting Petroleum. They should reflect standards of service and technology that are either state-of-the-art or otherwise economically appropriate to the operations in question in respect of new facilities and should be applied using standards in all matters that are no less rigorous than those used by the Companies in other global operations."

The Kurdistan PSC provides at Clause 37.1 that the oil company must comply with "**Best Practices**" that are defined as:

EXCERPT FROM THE KURDISTAN PSC:

37.1 - "standards that are no less stringent than the best practices, methods and procedures in carrying out Petroleum Operations consistent with a reasonable degree of prudence, as evidenced by the best practice of experienced operators in the exploration, development and production of Petroleum principally aimed at ensuring:

.....

- (b) operational safety, including the use of methods and processes that promote occupational security and the prevention of accidents;
- (c) environmental protection and worker safety, including best methods and processes which minimise the impact of Petroleum Operations on the environment;

.....

- (h) that equipment is operated at all times in a manner compliant with Applicable Law, applicable Permits, and this Contract, in accordance with all manufacturers' warranties, and in a manner safe to workers, the general public, the environment, plant and Assets;

....."

These lengthy definitions contrast with, for example, the Angolan model form PSC and the 2000 Ghanaian model Petroleum Agreement which have shorter form formulations.

The Angolan model form PSC has no article that is specific to environmental issues but includes in Article 14 (which sets out generally the obligations relating to the conduct of Petroleum Operations) a general requirement to act "in accordance with professional rules and standards which **are generally accepted in the international petroleum industry**". The 2000 Ghanaian model Petroleum Agreement includes in Article 17 (which deals with "Inspection, Safety and Environmental Protection") the following clause:

EXCERPT FROM THE GHANA-TULLOW AGREEMENT:

17.2 - "Contractor shall take all necessary steps, in accordance with accepted Petroleum industry practice, to perform activities pursuant to the Agreement in a safe manner and shall comply with all requirements of the Law of Ghana, including labour, health, safety and environmental laws regulations issued by the Environmental Protection Agency".

Whether or not the contract uses a longer or a shorter definition, as the text in bold indicates, they all, to some degree or another, refer to something that is accepted within the industry. This begs the next question which is what can be considered to be generally accepted. This is dealt with in the next chapter.

OPERATIONAL ETIQUETTE

Petroleum contracts are full of requirements for the oil company to conduct its operations in accordance with 'petroleum industry good practice' or 'accepted standards' as laid out in the earlier section. But what are these good practice and standards? Good question. Contracts hardly ever specify the practice or standard the company needs to adhere to, so how do you know which one to apply? Well, you don't in fact. Isn't that helpful? Its a bit like not knowing the etiquette or behaviour required in a particular social situation - what one person may consider appropriate may outrage another.

The question or assumption of the parties as to which standards and practice (or etiquette) apply is very often a point of dispute well after the contract has been signed, exactly because the contract does not specify the applicable practice. The difference in accepted practice between the parties has proven to be problematic particularly where new industry players or non- traditional companies are involved. Even though hardly any contracts currently do it, it would be advisable to spell out the applicable practice or standards.

As noted in the section above, most contracts state that the company has to adhere to national legislation (sometimes the specific laws are defined and other times they are not) as well as apply petroleum industry good or accepted practice. Some contracts then continue stating that the most stringent requirements should be applied, without stating which standard or practice is the most stringent. In the event that there is no section of the contract specifically addressing the environment, generic obligations to comply with "applicable laws" and "industry standards" may nonetheless be found in a section that lists out generally the obligations of the oil company.

This section provides an overview of associations and groups that recommend practice and provide standards on social, environmental, and health & safety issues. This might provide guidance for the inclusion of reference to specific practice or standards in contracts.

Global Industry Standards

There are a number of industry associations that have developed best practice guidance addressing health, safety, social and environmental issues. Petroleum companies can voluntarily join these associations and most of the major petroleum companies are members of these associations. Some of these associations are: the International Petroleum Industry Environmental Conservation Association (IPIECA), the American Petroleum Institute (API), and the International Oil and Gas Producers Association (OGP). The associations cover issues such as Biodiversity, Climate Change, Marine Environment, Decommissioning, Human Rights, Social Responsibility, and Water.

Besides these global petroleum associations there are several regional and national petroleum associations of which petroleum companies can be a member, such as ARPEL (Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean) and APPEA (Australian Petroleum Production and Exploration Association). These cover similar ground in publishing good practice guidance on social and environmental sustainability issues. Companies often refer to the fact that they are following the guidance and standards provided by one or more of these associations on their website, often covered under the Health, Safety and Environment or Corporate Social Responsibility tab.

Public Sector Standards

In addition, to these private sector associations there are also regional inter-governmental groupings such as the African Petroleum Producers' Association (APPA). They serve as a platform for petroleum producing countries to cooperate, collaborate, share knowledge and competences, including on environmental and social matters. None of the guidance provided by these associations is mandatory for governments to follow.

The International Organisation for Standardization (ISO) has developed industry-wide standards on environmental management (ISO 14000) for controlling environmental impact and improving environmental performance. ISO 31000 provides standards on risk management. Companies can get certified for many ISO standards, including ISO 1400 and 31000. ISO standard 26000 provides guidance on social responsibility, although it does not provide the option for certification. ISO has a Technical Committee (TC67) specifically dedicated to setting standards for the petroleum industry regarding materials, equipment and structures used. TC67 has developed about 150 standards which are increasingly being taken up by the above mentioned associations. Again, these standards are voluntary and it is up to a company to adopt these standards and/or get certified.

The Global Reporting Initiative provides a framework companies can use to report on economic, environmental, social and governance performance. The

reporting framework is complemented by sector guidelines on oil & gas which covers:

- Local content
- Volume and characteristics of estimated proved reserves and production
- Renewable energy
- Assessment and monitoring of risks for ecosystem services
- Policies, programs and processes to involve indigenous communities
- Existence of emergency preparedness programs
- Decommissioning of sites

The United Nations Global Compact have developed ten universally accepted principles from some of the key UN Conventions in the areas of human rights, labour, environment and anti-corruption. Companies can sign on to the UN Global Compact and will then need to report annually on the progress made in implementing these principles. Again, this is a voluntary initiative. Even though to date some 8700 businesses covering more than 130 countries apply the UN Global Compact principles, there is little participation from petroleum companies in this initiative.

The United Nations has also developed the United Nations Voluntary Principles on Security and Human Rights (UNVPs), which are increasingly referred to in natural resource contracts under clauses that discuss the provision of security for the project area. Companies often make use of private or public security forces to protect their operations. In some countries, especially conflict-affected ones, the use of security forces has led to alleged human rights abuses. The UNVPs guide companies in maintaining the safety and security of their operations while also ensuring the respect for human rights. The UNVPs require a risk assessment covering the identification of security risks, the potential for violence in the area, the human rights record of the state and its security forces, and an analysis of past or current conflict in the area. Guidance is also provided on the way in which companies can promote human rights compliance of public and private security forces.

Companies wanting to access funding from financial institutions will increasingly need to deliver on environmental and social sustainability standards. For instance, the International Finance Corporation (IFC) which is part of the World Bank Group has developed eight Performance Standards in the field of environment and sustainability, which companies receiving funding from the IFC need to comply with. The IFC standards include requirements on developing social and environmental baseline and impact assessments as well as management plans, protecting indigenous peoples and cultural heritage, providing a safe working

environment, land acquisition and resettlement, prevent pollution and use energy efficiently, and protect the health, safety and security of communities. These standards are increasingly also taken up by Regional Development Banks, such as the Inter-American Development Bank (IADB), African Development Bank (AfDB). The IFC Performance Standards are incorporated in the Equator Principles as well, which are applied by 75 privately owned financial institutions world-wide. A company wishing to access funding from these banks will need to demonstrate compliance with these standards.

There are separate standards for health and safety issues. The Oil Industry International Exploration and Production Forum, IPIECA, the International Association of Drilling Contractors, and the International Association of Geophysical Contractors are several examples of associations and groups that have developed standards for health and safety.

Rarely do contracts make reference to specific standards or good practice. One example is the Development and Production Sharing Agreement of the Gunashli field in Azerbaijan, in which the annex refers to Health and Safety standards by stipulating that the contractor ...

EXCERPT FROM DEVELOPMENT AND PRODUCTION SHARING AGREEMENT OF THE GUNASHLI FIELD IN AZERBAIJAN:

shall take into account the following international safety and industrial hygiene standards in conducting its Petroleum Operations: (A) Oil Industry International Exploration and Production Forum (E&P Forum) Reports - Safety; (B) International Association of Drilling Contractors (IADC) - Drilling safety Manual; (C) International Association of Geophysical Contractors (IAGC) - Operations Safety Manual; (D) Threshold Limited Values for Chemical Substances in the Work Environment American Conference of Governmental Industrial Hygienists.

The contract further states that the most appropriate standard relative to the Caspian Sea ecosystem should be applied.

BEFORE YOU START

Either the contract or the environmental legislation will require the company to identify and adequately mitigate potential environmental (and social) impacts it might cause. In order to establish the environmental (and social) conditions prevalent before any field work started, the environmental and social risks of the petroleum project, and how these risks can be managed, the company should be required to submit several documents that require the approval of the government department or agency responsible for environment. Social risks and impacts are still relatively new and some countries and/or contracts do not incorporate this type of risk in the requirements for analysing potential impacts, even though operations can have transformational impacts on communities. International standards do require social issues to be incorporated, and several environmental laws mention social issues as part of the requirements. Usually, approval of at least one of these documents (the baseline assessment) has to be granted before the company can start any field work. The documents include:

Baseline Assessment

A **Baseline Assessment** describes and evaluates the environmental and sometimes socio-economic conditions within the project-affected area at the start of the project. This data will be used as a baseline in order to determine actual and potential impacts of the petroleum operations in the environment and social circumstances. It collects and analyses data on water quality, flora and fauna, atmospheric compositions, composition and livelihoods of surrounding communities, etc.

The requirement to conduct a Baseline Assessment is sometimes mentioned separately in either the contract or the environmental legislation, and other times it is listed as part of the required environmental impact assessment (such as under international standards). Sometimes a baseline assessment is not required at all. Ideally, baseline assessments should be conducted before any field work has started. Sometimes, however, the contract only requires a baseline to be conducted together with the impact assessment at the point where a commercial discovery is made and the company is already preparing for field development and production. Some examples are shown below.

EXCERPT FROM AFGHANISTAN'S PRODUCTION SHARING CONTRACT FOR THE AMU DARYA BASIN:

23 - "Prior to the commencement of Hydrocarbons Operations in a Designated Field [...] the contractor shall undertake and complete a Baseline Environmental Assessment of the Designated Field [...] consistent with International Best Practices and applicable laws [...] ."

EXCERPT FROM THE AGREEMENT FOR THE AZERI AND CHIRAG FIELDS IN AZERBAIJAN:

"In order to determine the state of the environment in the Contract area the Contractor shall cause an environmental baseline study to be carried out".

The content of the baseline study is then described in the Appendix of the contract.

Impact Assessment And Mitigation Measures

Based on the Baseline Assessment, the company is then required to predict possible risks and impacts the project might have on the environmental and social situation. The impact assessment will include a description of the project, applicable legislation and international standards, baseline data, impact and risk identification and analysis, considered alternatives to the source of the impacts (such as plant design), and mitigation measures or management actions to offset or minimize each of the risks and impacts identified.

The content of the environmental impact assessment is usually defined in the environmental legislation. If it isn't, or no environmental legislation exists, the contract should include information on the content of an environmental impact assessment. For example, the Agreement for the Azeri and Chirag fields in Azerbaijan lists the required content of the baseline and impact assessments at Appendix 9. Alternatively, a contract can refer to international standards such as those set by the Global Oil and Gas Industry Association for Environmental and Social Issues (IPIECA) and the Performance Standards of the International Finance Corporation (IFC), which include requirements for the content of social and environmental impact assessments. The impact assessment should be completed as early in the project cycle as possible, but in any case before the development phase

starts.

Because of their high-risk nature, impact assessments for petroleum projects should consider all relevant social and environmental risks and impacts. This includes impacts on the following:

- Livelihoods and incomes of affected communities within the project area
- Flora, fauna, and biodiversity, both onshore and offshore (if applicable)
- Loss of access to land and sea by communities
- Community health and safety
- Security issues
- Labor
- Effects on hunting/fishing yields
- Disturbances caused by high noise levels
- Biodiversity
- Air/water quality
- Conflict and Human Rights
- Land Acquisition
- Resettlement and compensation
- Cultural Heritage

EXCERPT FROM AFGHANISTAN'S PRODUCTION SHARING CONTRACT FOR THE AMU DARYA BASIN:

23 - "In the course of the Hydrocarbons Operations, the Contractor shall consider, investigate, assess and manage the impact of the Hydrocarbons Operations on the environment and the socio-economic conditions of any Person who might directly be affected thereby."

Another important and related aspect here is the one on land. Procedures for acquiring land to conduct operations are usually covered in separate laws or in the petroleum project under clauses titled "Occupation of Land" or "Land Acquisition", or similar titles. The government is responsible for handing over government-owned land to the company, and the company is usually responsible for resettlement processes or compensation required for privately owned land, although some contracts state involvement of the government in clearing privately-owned land as well. The costs a company might incur in the compensation and resettlement process are sometimes made recoverable. In many developing countries land ownership is a sensitive issue and land titles are not well

documented. This often leads to problems and delays in the land acquisition process, and can cause severe grievances at the community level if not well handled. International standards such as the IFC Performance Standards and World Bank Operation Policy 4.12 cover resettlement and compensation as well.

Management Plan

Companies have management systems and standards for environmental (and social) performance. Environmental (and social) management plans are based on the risks and potential impacts identified in the impact assessment, and include a description of the significance and character of impacts, proposed actions the company will take to prevent or reduce negative impact, a description of the expected effects of the proposed actions and how the success of the proposed action will be measured, who in the company is responsible for executing the proposed actions, and when the proposed actions will take place. The International Organization for Standardization (ISO) has a standard with requirements for environmental management plans, for which companies can get certified.

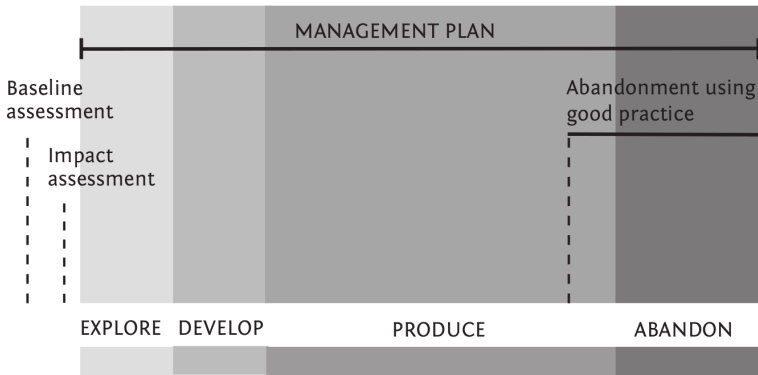
The Ghana Deepwater Tano contract does not include much detail on assessments and management plans because these issues, including social aspects, are covered in the Environmental Act. It does make a reference to management plans at Article 17.3:

EXCERPT FROM THE GHANA-TULLOW AGREEMENT:

"17.3. Contractor shall provide an effective and safe system for disposal of water and waste oil, oil base mud and cuttings in accordance with accepted Petroleum industry practice (...)."

Sometimes, usually in countries where there is no separate government entity responsible for environmental issues, the management plan is included in the field development plan so that approval of the Ministry of Petroleum or the National Oil Company is required. Occasionally, the contract requires the management plan to be included in the Annual Work Plan, so that approval of the government or joint management committee is required. Annual reports on environmental impacts and management are usually required to be submitted for review by the company to the responsible government agency.

The various requirements are shown together in a timeline below.



Environmental assessment and management on an oil project timeline

Who Conducts The Assessments?

Best practices require experienced and qualified experts, to be contracted by the company, to conduct the assessments. Sometimes the host-country government, the environmental agency, or the National Petroleum Company has to approve the expert brought forward by the company to conduct the assessments.

In the example below from Azerbaijan, the national petroleum company is involved in selecting the consulting firm that will conduct the impact assessment. It will also have a direct involvement in the study:

EXCERPT FROM THE AGREEMENT FOR THE AZERI AND CHIRAG FIELDS IN AZERBAIJAN:

26.4 - "... an environmental baseline study (...) to be carried out by a recognized international environmental consulting firm selected by Contractor, and acceptable to SOCAR. SOCAR shall nominate representatives to participate in preparation of the study in collaboration with such firm and Contractor representatives."

Who Approves?

Often, when there is an environmental law, a separate governmental department or agency is created (in many countries this is the environmental protection agency). This government entity is responsible for reviewing the baseline, impact assessment, and management plan. If the government entity approves of the company's assessments and proposed mitigation measures it issues an environmental permit, which allows the company to start field work or operations.

If there isn't an environmental law and specific government entity responsible for environmental issues, often the National Petroleum Company or the petroleum ministry is responsible for approving (instead of issuing a permit) the environmental assessment and management plans proposed by the company.

Example: In the Production Sharing Contract of Azerbaijan, the contractor, together with the National Petroleum Company prepares an environmental baseline and impact assessment. A sub-committee responsible for handling environmental issues under the Joint Management Committee then designs an annual monitoring program and reviews its results.

International good practice and legislation in some countries do not only address the required content of impact assessments, they also require a certain level of community consultations to be part of the process by which impacts are determined. This is often the only chance the affected communities have to provide input into the process and project. The requirements regarding the depth and usefulness of these community consultations are often debated. It often remains unclear if communities have had a real voice in the process, whether they are adequately represented, and if their concerns are incorporated the company's assessment and management plans.

Some International good practices include 'Free, Prior, and Informed Consent' (FPIC) as a prerequisite for the start of petroleum operations, meaning that affected communities have to have had sufficient time in advance to consider the impacts the operation might have on them, and that they have given their consent for the project to start. Even though FPIC is required by international standards such as the IFC Performance Standards, the term or requirement is usually not included in the petroleum contract and/or law.

Monitoring

Monitoring the implementation of the management plan as well as assessing the quality of the baseline and impact assessments depends on the capacity of the responsible government entity as well as its power to raise objections and, therefore, potentially delay the process. Many countries consider the environmental and social impacts of minor importance and see the baseline assessment, impact assessment and management plans merely as a box-ticking exercises that can get in the way of developing the resource, and generating revenues, as quickly as possible. In many countries, the environmental protection agency has issued environmental permits and responsible government entities have approved documents without any objections or request for review of the submitted impact assessments and management plans. The annual reports about environmental issues and management submitted by the company are often not read or commented on.

WHEN THINGS GO WRONG

If things go wrong and the petroleum operations cause harm to the environment, people or property, who is responsible for fixing it? And who pays for it?

In terms of responsibility, the contractor is primarily responsible for the conduct of petroleum operations. Without a petroleum contract saying any more, this responsibility should extend to activities necessary to mitigate or resolve environmental damage or harm to people or property. There will likely be laws that address the requirement for the company causing the damage or harm to restore the damage done and/or compensate those who have suffered. The general obligations in the contract will state that the company needs to comply with applicable law or perform petroleum operations in accordance with industry standards or best practice. This will import the obligation to comply with those environmental or health and safety laws or standards or best practices insofar as they require mitigation or re-mediation steps to be taken. The contract may have provisions that set out the responsibility of the oil company in case of damage or harm. For example, in the Iraq model Technical Service Contract, Article 41.11(a) states that:

EXCERPT FROM THE IRAQ MODEL TECHNICAL SERVICE CONTRACT:

41.11 - "In the event of an emergency, accident, oil spill or fire arising from Petroleum Operations affecting the environment, Operator shall forthwith notify ROC and Contractor and shall promptly implement the relevant contingency plan and perform such site restoration as may be necessary in accordance with Best International Petroleum Industry Practices."

In the Ghanaian 2000 model form Petroleum Agreement, Article 17.5 states that:

EXCERPT FROM THE THE GHANAIAIAN 2000 MODEL FORM PETROLEUM AGREEMENT:

17.5 - "....if Contractor's operations result in any other form of pollution or otherwise cause harm to fresh water, marine, plant or animal life, Contractor shall **in accordance with accepted Petroleum industry practice**, promptly take all measures to control the pollution, to clean up Petroleum or other released material or to repair, to the maximum extent feasible, damage resulting from any such circumstances."

As has been previously discussed, the requirement to take actions in accordance with, in the above examples, "Best International Petroleum Industry Practices" and "accepted Petroleum industry practice" raises some questions as to exactly what the oil company needs to do to fulfil its obligations to remedy damage or harm but the contract does settle the responsibility on the oil company to take action.

So who pays for the measures taken? In short, who ultimately bears the costs incurred resulting from an accident.

The costs for measures taken to resolve damage or harm done fall under the costs of the general petroleum operations. An oil company will typically recover the costs resulting from an accident through its petroleum operations in one way or another. This takes different forms depending on the type of contract.

In a concession contract, such costs will be deductible from revenues from petroleum sales for the purposes of determining taxable profits. In a production sharing contract, the oil company will be entitled to a share of produced petroleum to recover its costs. In a service contract, the fee paid to the oil company will include a component to cover its costs.

If the oil company is ultimately reimbursed for the costs it incurs to mitigate any damage caused or harm done, one perspective is that the oil company does not directly or fully, pay for the mitigation or re-mediation activities. To the extent that the costs reimbursed represents revenue that the State would otherwise have received. It may be said that the state indirectly pays for such measures, or that the state and the oil company share the costs since expenditures reduce revenue available to both parties.

The principle that costs incurred in mitigation or remediation of environmental damage or harm to people or property are petroleum costs that are recoverable is often expressly stated in the petroleum contract. For example, the Iraqi model Technical Service Contract Article 41.15 provides that:

EXCERPT FROM THE IRAQI MODEL TECHNICAL SERVICE CONTRACT:

41.5 - "...all costs incurred towards protection of or damage to the environment shall be treated as Petroleum Costs."

However, petroleum contracts often contain one important qualification or exception to the principle that such costs are treated as petroleum costs. This is illustrated by looking at the full text of Article 41.15 of the Iraqi Model Service Contract which states as follows:

EXCERPT FROM THE IRAQI MODEL TECHNICAL SERVICE CONTRACT:

"Except for cases of Gross Negligence and Wilful Misconduct on the part of the Contractor and/or Operator, all costs incurred towards the protection of or damage to the environment shall be treated as Petroleum Costs".

This qualification or exception is also illustrated by the Ghanaian 2000 model Petroleum Agreement in which the last sentence of Article 17.5 states that:

EXCERPT FROM THE GHANAIAN 2000 MODEL PETROLEUM AGREEMENT:

17.5 - "If such release or pollution results from the gross negligence or wilful misconduct of Contractor, the cost of subcontract clean-up and repair activities shall be borne by the Contractor and shall not be included as Petroleum Cost under this Agreement."

So, where pollution or damage results from the "gross negligence" or "wilful misconduct" of the Contractor the costs are not petroleum costs but are paid by the contractor (the oil company) itself. The question then becomes: What is "gross negligence" or "wilful misconduct"?

This is a complex area of law to which there is no easy or single answer. The definition of what constitutes "gross negligence" or "wilful misconduct" may vary from country to country and depends on the law that governs the particular petroleum contract. The basic principle is, however, that for the oil company to bear the costs itself its behaviour must have fallen significantly short of the standard

expected or required by the petroleum contract or law. A mere mistake will not constitute "**gross negligence**" or "**wilful misconduct**". The fact that the negligence has to be "gross" and the misconduct "wilful" makes it apparent that not just any negligence or misconduct by the oil company will be sufficient to make it bear the costs itself.

In the event of a significant or catastrophic environmental mishap or accident this question will be of commensurately significant importance. An example of this is the 2010 Deepwater Horizon/Macondo spill in the Gulf of Mexico. The critical question in relation to the potential liability of the companies involved in the accident was/is whether they were "grossly negligent" or not.

How does the petroleum contract help ensure that the costs for mitigation and restoration are met? Petroleum contracts will contain provisions that require the oil company to take out necessary insurances. This obligation may be a very general one, such as an obligation to take out insurances that shall "*cover the types of exposure that are normally covered in the international petroleum industry*". Sometimes contracts state more specific types of required insurance cover such as "*including but not limited to damage to equipment, installations and third party liabilities*". It is rare to find a requirement that expressly requires an oil company to have environmental insurance. On such example where this is the case is the Brazilian Concession Agreement which states that:

EXCERPT FROM BRAZILIAN CONCESSION AGREEMENT:

"The concessionaire shall provide and maintain in effect, during the whole term of this Agreement, and without causing a limitation to the Concessionaire's liability, insurance coverage executed with a competent company, for all cases requested by the applicable legislation, as well as to comply with the determination by any competent authority regarding assets and personnel relating to the Operations and its performance, protection of the environment, relinquishment and abandonment of areas, removal and reversion of assets."

Insurance covering environmental damage reduces the financial risks to which the state and company are exposed. But this assumes that such insurance is available. The challenge here is that since the Gulf of Mexico oil spill in 2010 it is increasingly difficult to identify insurance companies willing to insure petroleum companies for these types of environmental risks, as they are difficult to evaluate and estimate.

Whether or not insurance cover is available, if the oil company is a small

company without significant assets or balance sheet strength, or a small subsidiary of a big oil company, the petroleum contract might include other ways of ensuring that the oil company can meet and pay for its obligations under the petroleum contract generally, including environmental damage or harm done.

Petroleum contracts therefore often require that a formal guarantee is provided by a parent company of the oil company, or from a financial institution. So, for example, if a major international oil company forms a local company to enter into a petroleum contract, the government of the host-country will in some instances require that the international oil company guarantees the performance and obligations of the local oil company. If the local oil company cannot pay the costs it has to pay in case of environmental damage or harm caused, the government can require that the international oil company pays for it, by including a parent company guarantee. Then, only if the costs are too great for even the international oil company to cover and it goes bankrupt as a result, then the government is left to pick up the pieces and meet the costs.

CLEANING UP

Eventually an oil or gas field will come to the end of its economic life, meaning that it is no longer profitable to continue producing oil or gas from the field (cf. the first section to read more about the life cycle). At that point an oil company is typically required to "**decommission**" or "**abandon**" the field. The use of the term "abandon" is a misnomer since the obligations of the oil company are not at all to simply walk away from the field. In fact, quite the reverse. The obligation of the oil company is to remove the facilities and infrastructure that it built for the purposes of producing and transporting the oil or gas and, so far as possible, to return the natural environment to the state it was in before petroleum operations commenced. Accordingly, most contracts and participants in the oil and gas industry now refer to "decommissioning" rather than "abandonment" although the two terms refer to the same thing.

At the time that a petroleum contract is entered into the issue of decommissioning may not be at the forefront of the parties' minds, since such activities may not be relevant for another twenty to thirty years (depending on the length of the contract and the success or not in finding commercial quantities of oil and/or gas). Additionally, in any new oil and gas producing jurisdiction, the issue of decommissioning is understandably not a major preoccupation as opposed to the business of stimulating exploration and getting to production. A petroleum contract and/or related legislation needs to provide for the obligation to decommission an oil or gas field, the cost of which may be significant, particularly in relation to an offshore oil or gas field.

Example: One might compare, for example, the early stage oil and gas industry in Ghana or Uganda with the very mature industry in the United Kingdom. There are over 500 platforms with associated pipelines and other infrastructure in the United Kingdom, the cost of removing which has been put by Oil & Gas UK at over 28.7 billion GBP by 2040.

With such high costs, a key concern related to an obligation to decommission an oil or gas field is to ensure that the oil company is able to pay for it. By definition, this process of decommissioning comes at a point in time when an oil company is no longer making any significant profit from the field. Accordingly, the costs of decommissioning cannot be met from the revenue that is generated from the sale of oil or gas from the field.

So how does the Government ensure that decommissioning activities will be paid for? The mechanism that has been developed and is typically used to deal with this is to ensure that, from a certain point in time during the life of the oil or gas

field, the oil company starts contributing to a fund which will accumulate and, at the end of the life of the field, be available to pay for the cost of decommissioning.

These contributions are made whilst the oil company is generating a profit from the field and can afford to put money aside to meet the future costs. To determine how much money needs to be put in this fund, the oil company will need to prepare a decommissioning plan which will set out the activities that need to be undertaken to decommission the relevant field and the estimated costs of those activities. By updating the plan on a regular (perhaps annual) basis, the estimated costs are kept current. In some jurisdictions, instead of putting cash into a fund, an oil company may be able to provide security for its financial obligations in relation to decommissioning, such as a bank letter of credit.

As with other matters relating to the environment, there are wide divergences in the degree to which petroleum contracts expressly deal with this issue of decommissioning. The Ghanaian model Petroleum Agreement at Article 17.3 merely provides that the oil company will:

EXCERPT FROM THE GHANAIAN MODEL PETROLEUM AGREEMENT:

17.3 - "provide an effective and safe system for disposal of water and waste oil, oil base mud and cuttings in accordance with accepted Petroleum industry practice, and shall provide for the safe completion or abandonment of all boreholes and wells".

The Iraqi model TSC is similarly brief, providing at Article 42 that the oil company prepares a proposal for approval relating to site restoration and decommissioning "*around mid-Term*" and on expiry or termination of the contract it shall:

EXCERPT FROM THE IRAQI MODEL TSC AGREEMENT:

42 - "remove all equipment and installations from the relinquished area or former Contract Area in a manner agreed with ROC pursuant to an abandonment plan".

In neither case is there any mention in the contract of a requirement to set aside money in a decommissioning fund although this may be a required feature of any

decommissioning plan agreed in the the case of the Iraqi TSC.

By contrast, the Kenyan model PSC includes at Article 42 some four and a half pages of provisions relating to abandonment and decommissioning including a requirement to submit a "Decommissioning Plan" as part of the Development Plan, a requirement to, from a certain point in time:

EXCERPT FROM THE KENYAN MODEL PSC AGREEMENT:

42 - "book sufficient accruals for future abandonment and decommissioning operations to cover the expenses which are expected to be incurred under the Decommissioning Plan".

The amounts accrued must be paid into a separate interest bearing account to ensure that they are available to pay for decommissioning activities. The oil company is entitled to recover amounts that it sets aside as petroleum costs. Likewise Clause 38 of the Kurdistan 2012 model PSC has relatively extensive provisions relating to decommissioning obligations including a requirement to:

EXCERPT FROM THE KURDISTAN 2012 MODEL PSC AGREEMENT:

38 - "undertake Decommissioning Operations in accordance with Best Practices, Applicable Law, an Approved Decommissioning Plan and approved Decommissioning Work Programs and Budgets" and an obligation to "establish a segregated fund in the name of the Government at a financial institution satisfactory to the Government and under such escrow or trust terms as the Government may require, to pay for Decommissioning Operations and site restoration".

LAWYERS YAMMERING ON



DEALING WITH DIFFERENCES

If one thing is certain about a petroleum contract it is that, at some point, the two parties will disagree. The disagreement may be about whether they have done what they said they would in the way they promised to and within the time-frame they agreed on.



Different interpretations giving rise to dispute

Sometimes, before the parties can decide whether or not one of them has not done what they said they would do, they may have an argument over the interpretation of the relevant provision of the contract! Notwithstanding all the time and effort put into negotiating and writing the contract there is always scope for disagreement about what particular provisions actually mean. In fact, an important fact about petroleum contracts that may come as a surprise to outsiders is how often they include provisions to negotiate one matter or the other at some later stage.

"Good faith" seems to be a critical wording here. And an example of phrases that postpone a decision (cf. examples below).

In our family of contracts, we have for example:

EXCERPT FROM THE LIBYAN EPSA

13.5.2 - "shall proceed in good faith to negotiate a gas sales agreement incorporating the principles set forth in Article 13.4"

This is used as and when associated gas is produced as a result of an agreement which is essentially for oil. Another example states:

EXCERPT FROM AZERBAIJAN:

15.2.(cd) - "SOCAR and Contractor shall diligently negotiate each such Supplemental Agreement (and the relevant Sales Agreement) in good faith".

With the contract comes an appendix of Accounting Procedures referred to in the main contract.

EXCERPT FROM AN APPENDIX OF ACCOUNTING PROCEDURES:

"if any of such methods prove to be unfair or inequitable to the Contractor then the Parties will meet and in good faith endeavour to agree on such changes as are necessary to correct any unfairness or inequity"

and another example from Iraq:

EXCERPT FROM IRAQ'S TECHNICAL SERVICE AGREEMENT:

2.3 - "Discovered but undeveloped reservoirs, as defined in Annex D, may be developed and produced under this Contract but shall be subject to a separately agreed remuneration fee which the Parties undertake to, in good faith, agree".

Sometimes, then, on major issues, the contract states an agreement to agree at a later date, with the explanation that "We haven't got the information to discuss this

now". A good example is gas, what to do with unknown reservoirs the company might stumble across when exploring for oil. Other times, an ambiguity is left deliberately in a particular provision as the only way to reach agreement of all parties in a given time frame - "We can't resolve this completely now so let's use placeholder language". In such cases each party might give its own meaning to the clauses, different to the other side's, and they may or may not be aware that the other party's interpretation of that clause is different.

This clearly involves a risk of disagreement and dispute at some point in time.

Another phrase frequently used in contracts but which can set the parties up for disagreement, is an obligation to **"use reasonable efforts"** or to **"deliver in a timely manner"** to do something. Although the law may provide some guidance as to what "reasonable efforts" or "deliver in a timely manner" requires, there will, in any given situation, be scope for argument as to whether what has been done constitutes "reasonable efforts" or "timely manner". Then again there are references to "generally accepted international practices".

Many contracts stipulate that contracts need to be **"prudent"** and **"diligent"**. Of our family of contracts, six (Azerbaijan, Brazil, Indonesia, Iraq, Libya and Timor Leste) present 25 uses of the word "diligent" and eight of the word "prudent". It is left to courts to decide what meaning should be attached to words which, to the outsider, look nebulous and subjective.

Generally, disputes arise when one party's interpretation of a provision results in the other party having to spend more money or get less money than it believes it should do, or where one party believes that the other's interpretations or actions deprives it of a significant benefit or right that it was entitled to.

The petroleum contract will always have a section that sets out the rules for how the parties will resolve or settle disagreements. This might be referred to as the **"Dispute Resolution"** section or as the **"Arbitration"** section or something similar. There are a number of different mechanisms available to resolve contractual disputes, including:

- parties reaching agreement on the resolution themselves
- using a formal mediation process
- engaging an expert to make a determination of the issue in dispute
- legal adjudication of the dispute/arbitration

Sometimes a contract may include all of these processes in a hierarchy starting with an obligation for the parties to try to reach an agreement themselves and ending with submission to the relevant legal adjudication process. In the example below, a hierarchy is provided as follows,

EXCERPT FROM THE IRAQI MODEL FORM TECHNICAL SERVICES CONTRACT IN ARTICLE 37:

- "The Parties shall endeavour to settle amicably any dispute (the "Dispute") arising out of or in connection with or in relation to this Contract or any provision or agreement related thereto."
- "Where no such settlement is reached within thirty (30) days of the date when one Party notifies the other Party of the Dispute, then the matter may, as appropriate, be referred by the Parties to their senior management for resolution."
- Where no such settlement is reached within thirty (30) days of such referral to management, any Party to the Dispute may refer the matter, as appropriate to an independent expert or, by giving sixty (60) days notice to the other Party, refer the matter to arbitration as stipulated hereunder".
- If any Dispute arises between the Parties with respect to technical matters, such Dispute may, at the election of either Party, be referred to an independent expert ("Expert" for determination".
- "All Disputes arising out of or in connection with this Contract, other than those Disputes that have been finally settled by reference to either senior management or Expert, shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by three arbitrators appointed in accordance with said Rules."

In almost all cases, the parties will as a matter of common sense try to resolve disputes themselves first, irrespective of whether or not the the contract requires them to do so. It's far cheaper and less prejudicial to the relationship than calling in outsiders. It is only when that appears to be impossible that there arises need to resort to the other dispute resolution mechanisms. Certain disputes that are of a more objective nature lend themselves to expert determination, for example around the valuation of oil, where clear data are available from markets, and other accounting matters. The contract may specify the appointment of an expert for some issues which will typically be of a technical nature and therefore suitable for objective, expert determination. Disputes that involve subjective issues of interpretation of the meaning of parts of the contract are not suitable for expert determination.

Arbitration

Arbitration is the process used in petroleum contracts for resolving disputes that have not otherwise been resolved. Unless a contract includes provisions requiring the parties to use an arbitration process, the dispute would usually be settled through the courts of the relevant country or countries. Arbitration is a step short of actual court action. For the parties, particularly oil companies, it carries two main advantages over an actual court system. First, it is not in the court of the country that they have a dispute with. Second, arbitration procedures are, in theory, confidential.

The issue of where an arbitration takes place is naturally sensitive. Media and the public in host countries often feel that the shift in jurisdiction away from their country is an affront. But companies worry that the court system of their government partner may be subject to political pressure. However it is important to understand that the fact that the arbitration is taking place out of the country is separate from the question of which country's law will be used. So, if a dispute arises under a petroleum contract in Ghana, then Ghanaian law applies to the contract, and an arbitration process would decide the dispute applying Ghanaian law even if the arbitration process is carried out in a different country. The arbitration process being carried out in a different country is seen as a neutral or fair process by the oil company compared to settling the dispute in the Ghanaian courts.

Whilst host country citizens may find the suggestion that their courts are not impartial or fair somewhat insulting, the reality is that in many jurisdictions the court process may not be independent, or may be slow, and international investors generally (not just oil companies) prefer not to take that risk.

Typical features of an arbitration provision in a contract are:

- Provision that the arbitration be conducted in accordance with the rules of a particular arbitration organisation. There are a number of recognised international arbitration organisations each of which have a set of rules that will apply to the arbitration process. Different rules have certain pros and cons, an examination of which is beyond the scope of this book, but the better known and often used ones include the UNCITRAL Rules, the London Court of International Arbitration Rules ("LCIA"), the International Chamber of Commerce Rules ("ICC") and the rules of the International Centre for Settlement of Investment Disputes ("ICSID");
- Provision of where the arbitration is to take place. This might be referred to as the "seat" of the arbitration. Often, a "neutral" venue is chosen, being one that is not in the country with which the contract is made and not in the country from which the relevant oil company or its parent organisation comes from. Choices of independent venues might include, for example, Paris, London or Stockholm.

It is important to note that this does not mean that French, English or Swedish law will be applied to the dispute instead of the relevant governing law of the contract. Sometimes the chosen venue is indeed located in the country where the oil company or its parent comes from. For example, the recent arbitration involving the Government of Uganda and Heritage Oil, a London head-quartered and listed company was being conducted in London, the location specified by the relevant petroleum contract;

- Provision on the number of arbitrators that will determine the dispute. Frequently this will be three. This allows each party to select one arbitrator and then to jointly appoint a third or for the third to be appointed pursuant to the relevant arbitration rules. Although all of the arbitrators should be impartial and objective, if only one arbitrator is used there is a greater potential for one party to feel that the arbitration process is not fair;
- Provision for the language in which the arbitration should be conducted, which would normally be a major international language that has some (historical) relationship to the country to which the dispute relates such as English, French, Spanish or Portuguese.
- Provision on who pays for the arbitration. Usually the expenses of an arbitration are borne equally among the Parties.

Looking at the contracts that have been used to provide examples in this book and how they deal with dispute resolution we find that they all refer disputes that cannot be otherwise settled to arbitration and have arbitration provisions as follows:

COUNTRY	GOVERNING LAW	ARBITRATION RULES	PLACE OF ARBITRATION	NO. OF ARTICLES ARBITRATORS
Afghanistan	Afghanistan	ICSID	London, England	3
Azerbaijan	See below	UNCITRAL	Stockholm, Sweden	3
Brazil	Brazil	ICC	Rio de Janeiro, Brazil	3
Ghana	Ghana	ICC	London, England	3
Iraq	Iraq	ICC	Paris, France	3
Indonesia	Indonesia	ICC	Geneva, Switzerland	3
Libya	Libya	ICC	Paris, France	3
Timor Leste	Timor Leste	Specifies alternatives n/a including ICSID		n/a

The governing law clause in Azerbaijan states:

EXCERPT FROM AZERBAIJAN JOINT DEVELOPMENT AND PRODUCTION SHARING CONTRACT:

"shall be governed and interpreted in accordance with the principles of law common to the law of the Azerbaijan Republic and English law, and to the extent that no common principles exist in relation to any matter then in accordance with the principles of the common law of Alberta, Canada..."

STABILISATION

Stabilisation, the provisions that international companies use to secure guarantees against changes in the conditions or the investment environment within which a contract was negotiated, is an issue sure to provoke heated debates whenever included in investment agreements. Petroleum contracts are no exception.

Why Stabilize?

The basic principle that such clauses are intended to address from the oil company perspective is that the contract terms and conditions were agreed upon on the basis of the laws of the relevant country as they existed at the time of negotiations and should therefore not be changed unilaterally by one party (the state). But in a project where billions of dollars may be invested in a project with an expected 25 year life cycle a lot could happen.

Governments can rise or fall through elections, or even revolutions, society and economic development needs and the legal environment can change fundamentally, as well as the international context. The company therefore endeavours to "stabilise" the terms of its investment by writing into the contract provisions which prevent overall changes in the legal, financial, environmental and social requirements in the country of operations from affecting their operations. Breaching that provision then, will entitle the company to usually generous compensation.

Countries, of course, see it completely differently, more like an infringement of sovereignty. A stabilisation provision in a petroleum contract should therefore never actually have the effect of preventing changed laws of the country from applying to the contract. However such changes in a country's laws may have an adverse effect on the economics and profitability of the project, and since nobody can challenge a sovereign country's rights to change its laws at any time, the company is in a general sense always at a possible disadvantage in what is for them a commercial relationship with a commercial counterpart.

What a stabilisation clause in a contract might say, then, is if the country changed its laws in a way that affects the relevant petroleum contract, this would be a breach of the provision and give the oil company a right to claim compensation for such a breach. Alternatively, the changed laws will not apply to the contract.

What, Exactly, Are Companies Wary Of?

Changes that a company might seek to guard against include changes in the fiscal regime like increases in existing taxes or the imposition of new ones. Or there could be changes to laws that affect the conduct of petroleum operations, such as labour law, for example, imposing more stringent or additional requirements. The compensation claimed would be equal to the difference between the expected return to the oil company under the petroleum contract before the law changed and the expected return after the law changed. An example of a stabilization provision is given below.

EXCERPT FROM GHANAIAN PRODUCTION SHARING CONTRACT:

26.2 - ".....As of the Effective Date of this Agreement and throughout its Term, the State guarantees the Contractor the stability of the terms and conditions of this Agreement as well as the fiscal and contractual framework hereof specifically including those terms and conditions and that framework that are based upon or subject to the provisions of the laws and regulations of Ghana (and any interpretations thereof) including without limitation the Petroleum Income Tax Law, the Petroleum Law, the GNPC Law and those other laws, regulations and decrees that are applicable hereto. This Agreement and the rights and obligations specified herein may not be modified, amended, altered or supplemented except upon the execution and delivery of a written agreement executed by the Parties. Any legislative or administrative act of the State or any of its agencies or subdivisions which purports to vary any such right or obligation shall, to the extent sought to be applied to this Agreement, constitute a breach of this Agreement by the State."

No problem understanding why governments and citizens of oil producing countries don't like stabilisation clauses. From the government's perspective, an oil company investing in their country should take the risk of a change in law since setting its own laws is one of the fundamental rights of a sovereign state. For this reason, governments will resist a generic stabilization provision. In fact, whilst stabilization clauses exist in older petroleum contracts, they are becoming increasingly rare. These clauses are often referred to as "freezing clauses" because they freeze the law in place at the time the contract is signed.

The 'Middle' Ground

Enter a new and improved stabilisation clause, now known as "**equilibrium**" provisions.

The aim of an equilibrium provision is similar to a stabilisation provision, minus the political sting - to preserve the overall economic position of (typically) the oil company or (sometimes) the government without being seen to infringe sovereignty. The principle is that one of the parties is adversely impacted by a change in law, both parties seek to agree to changes to the petroleum contract that will restore the original financial position. The company gets the same reassurance but the locus of change has been moved inside the contract. The contract now sets up its own renegotiation on this issue given the recognised trigger, leaving the wider body of regulations and laws in the country out of the picture.

For example, if the country amends its tax law and taxes imposed on the profits of the oil company are increased by 10%, the parties would seek to agree an amendment to some other terms of the petroleum contract to compensate the oil company for the increased tax it has to pay, for example, by increasing the profit oil it receives or a reduction in the royalty rate. There might still be haggling over the numbers, since, as we have seen, each fiscal tool has its own properties. You can adjust a royalty rate to exactly compensate for a rise in corporate tax at a certain price point of crude oil, for example, but you may lose that correspondence if prices move up and down. But this is technical quibbling (lawyers yammering on?) at the margins. The essential sting of the change in law will have been removed for the company.

So the parties agree to renegotiate. But if they can't agree an amendment to the contract, then the equilibrium clause may provide a basis for the oil company to seek compensation. In this case the ultimate effect may be similar to that of a stabilisation provision as described above.

Note: Equilibrium clauses are often quite short. That doesn't mean that they are not important.

Some examples include:

EXCERPTS FROM VARIOUS MODEL PETROLEUM CONTRACTS:

"Without prejudice to other rights and obligations of the Parties under the Agreement, in the event that any change in the provisions of any Law, decree or regulation in force in [country] occurs subsequent to the signing of this Agreement which adversely affects the obligations, rights and benefits hereunder, then the Parties shall agree on amendments to the Agreement to be submitted to the competent authorities for approval, so as to restore such rights, obligations and forecasted benefits."

"....if after the Effective Date, the financial interests of Contractor are adversely and substantially affected by a change to the Law which was in force on the Effective Date, or by revocation, modification or non-renewal of any approvals, consents or exemptions granted to Contractor pursuant to this Contract (other than as a result of Gross Negligence or Wilful Misconduct of Contractor or Operator) the Parties shall, within ninety (90) days, agree on necessary adjustments to the relevant provisions of this Contract in order to maintain Contractor's financial interests under this Contract reasonably unchanged."

Look closely and you will see that the second example offers the oil company less protection than the first. The first example applies to "any change in the provisions of any Law" which "adversely affects [any of] the obligations, rights" of both parties. This kind of broad and generic language is sometimes referred to as a "freezing" clause. The second example applies only if the change in Law "adversely and substantially" affects the "financial interests" only of the contractor. The burden of proof is higher. In addition the stabilisation is confined to what may produce a change in financial interests only.

Civil society groups sometimes complain about freezing clauses as in the first example above, on the grounds that such a clause can have an impact on a government's room to pass new social and environmental laws, for example on health and safety, labour and employment rights, the protection of the environment and cultural heritage, and human rights.

From a lawyer's perspective, the difference between the two clauses may not be as great as it appears at first glance, since even with a more restricted clause such as in the second example a company could argue that stricter or more comprehensive social and environmental laws result in a higher cost of compliance. If, on the other hand, the contract at its inception required the company to apply international practice or standards for its social and environmental practices, then a stabilisation or equilibrium clause would not apply unless new social and environmental laws

were passed which are more stringent than international best practice. The country would then have assured itself a floor of compliance across a range of issues without the concern of triggering these clauses.

Some jurisdictions, like Libya, don't offer any form of stabilisation or equilibrium clause, and there's even one example where an "anti-stabilization" clause is included in a model petroleum contract:

EXCERPT FROM LIBYAN MODEL PETROLEUM CONTRACT:

"The introduction of new Applicable Law or change of Applicable Law will not entitle the Contractor or any Contractor Entity to any rights to any alteration to the terms of this Contract or any claims against the Government under this Contract."

On a final note, stabilisation or equilibrium provisions may not always be in a clause conveniently labelled "Stabilisation" or "Equilibrium". In the family of contracts used in this book, for example, Azerbaijan has a clause (23) called "Applicable Law, Economic Stabilisation and Arbitration", while in Ghana it slips in under Article 26.4 "Miscellaneous". Other contracts have references to the principle scattered across the contract, in clauses dealing with governing law, dispute resolution or miscellaneous provisions or even in environmental, tax or subject specific provisions.

Often but not always towards the end of the contract.

Happy hunting!

Lawyers yammering on

CONFIDENTIALITY

Let us go back to where we began. This book aims to describe oil contracts, the issues they govern, the history that shapes them and the world they live in, in broadly neutral terms. We see a value in explaining without taking sides. The one exception to that neutrality is contract transparency. This book actively seeks to promote contract transparency as an emerging norm which will improve governance of the oil and gas industry around the world. Let us now explain why, taking a look at the confidentiality clauses themselves in the contracts.

Opponents of contract transparency advance two main arguments. First, that contracts as currently written forbid it. And second, that it would harm their interests. Let's take each of those in turn.

Breach Of Contract

When you look up close, the idea that current negotiated agreements require the contracts to stay secret is actually a myth. Most governments around the world could publish most of their petroleum contracts today without any danger of being in breach of contract. Furthermore, many contracts get ratified by parliament and should therefore be automatically in the public domain. Unfortunately in practice this is not often done.

Every contract we feature in the book deals with the issue of what can be published and what can't - who can release what information under what conditions. And some of them seem quite restrictive. Some examples:

EXCERPT FROM THE IRAQI TECHNICAL SERVICE AGREEMENT:

33.1 - "All information and data obtained in connection with or in relation to this Contract shall be kept confidential by the Parties and their Affiliates and shall not be disclosed or communicated to any third party without the other Party's prior written consent."

EXCERPT FROM AZERBAIJAN'S PSA WITH THE CONSORTIUM LED BY BP:

27.1a - Subject to the provisions of this Contract, each Party agrees that all information and data of a technically, geologically or commercially sensitive nature acquired or obtained relating to Petroleum Operations and which on the Effective Date is not in the public domain or otherwise legally in the possession of such Party without restriction on disclosure shall be considered confidential and shall be kept confidential.

EXCERPT FROM GHANA'S CONTRACT WITH TULLOW:

16.4 - All data, information and reports including interpretation and analysis supplied by Contractor pursuant to this Agreement, including without limitation, that described in Articles 16.1, 16.2 and 16.3 shall be treated as confidential and shall not be disclosed by any Party to any other person without the express written consent of the other Parties.

EXCERPT FROM TIMOR LESTE'S PSA WITH CONOCOPHILLIPS:

15.6 - The Ministry shall not publicly disclose or make available, other than as required by the Act or for the purpose of the resolution of disputes under this Agreement, any data or information mentioned in Section 15.1 until the earlier of: (i) five (5) years after it was acquired by the Contractors; and (ii) this Agreement ceasing to apply in respect of the point at or in respect of the point at which it was acquired.

Heavy! However, notice that the restrictions apply to "**information and data**" and do not explicitly mention the contract itself. Is the contract part of such data and information? Some contracts do specify that, but most don't. Opponents of contract transparency often argue that the provisions of contracts themselves prevent publication but we can see from the actual wording that this is, at the very least, open to interpretation. Terabytes of information are generated during the lifetime of a petroleum project these days, from seismic data and interpretation at the exploration stage to core samples and analysis from drilling, to well logs and trading data generated by getting the stuff out of the ground and selling it. This is more clearly data and information defined in these clauses rather than the contract

itself.

But in addition, all these articles then go on to specify permitted exceptions to the rule of secrecy. These typically are when information is already in the public domain or there is a dispute which has gone to arbitration. Or when (as in the case of Ghana) the state oil company wants to brief any consultant, or to attract other investors to nearby areas, or the company needs a bank loan or for another financial transaction. And in fact this is what happened in the case of the Ghana contract which is a final, signed and initialled agreement you can find on the Internet.

Other agreements start to differentiate between the obligations of the companies and those of the state. Back in 2001, for example, Brazil's model concession agreement imposes the strictest of terms on the company.

EXCERPT FROM BRAZIL'S MODEL CONCESSION AGREEMENT

33.1 - All and any data and information produced... shall be confidential and therefore, shall never be disclosed by the Concessionaire without the prior written consent of ANP... the undertakings of paragraph 33.1 shall remain in full force and effect and shall survive the termination or recession of this Agreement, for any reason whatsoever.

The obligations on the Brazilian government, as represented by ANP, are somewhat more relaxed:

EXCERPT FROM THE BRAZILIAN GOVERNMENT AGREEMENT, AS REPRESENTED BY ANP

The ANP undertakes not to disclose any data and information obtained as a result of the Operations and which regards the part(s) of the Concession Area retained by the Concessionaire, except when such disclosure is necessary for compliance with legal provisions, which are applicable to the ANP or with the purposes for which the ANP was created.

So while the company should "never" disclose anything "for any reason whatsoever" ANP can disclose anything to comply with the purposes for which it was created. That's a pretty broad exception.

Libya's EPSA IV agreements of 2005 have a long clause relating to confidentiality

- but every provision applies to the "Second Party" - the company. The "First Party", the government of Libya as represented by the National Oil Corporation, has no obligations whatsoever stated in the contract.

Finally, Afghanistan's agreement with CNPC in 2011 is the only contract in the suite which doesn't have a confidentiality clause. Instead it has a transparency clause.

EXCERPT FROM AFGHANISTAN'S AGREEMENT WITH CNPC IN 2011:

33.1 - The Ministry shall have the right to keep a copy of this Contract in the Hydrocarbons Register, publish and keep publicly available and distribute to provincial offices such information and reports on the Contract, related documents and the Contractor as is required pursuant to the Hydrocarbons Law, any regulations issued thereunder and internationally accepted norms relating to transparency in the extractive industries, including production and financial data concerning all revenues from income taxes, production shares, royalties, fees and other taxes and other direct or indirect economic benefits received by the Ministry and all amounts paid by the Contractor under or in relation to this Contract.

Following this, it has a "Trade Secrets" clause:

EXCERPT FROM AFGHANISTAN'S AGREEMENT WITH CNPC IN 2011:

33.2 - Notwithstanding the above, if such information concerns technical devices, production methods, business analyses and calculations and any other industrial and trade secrets and are of such a nature that others may exploit them in their own business activities, the Ministry may approve that such information may rightfully be subject to confidentiality for a certain period of time.

So the principle is established the other way round. Everything should be public, unless a specific reason is stated as to why it should be private.

This is as it should be. It also conforms to the emerging norms of freedom to information legislation which have been passed to provide access for citizens to information held by the state in 90 countries out of the 196 official independent countries of the world.

Harmful To Interests

Perhaps the most widely made and unchallenged claim for confidentiality is that it protects commercially sensitive information. But this claim is only the beginning of an analysis, not the end. Everything, from the existence of a contract, to illegal bribes, to most of what is disclosed under securities regulations, could be classified as commercially sensitive.

As can be seen from the contracts profile, though, many contracts have been published in their final form - Ghana's agreement with Tullow, Timor Leste's with Eni, Azerbaijan's with BP, and Afghanistan's with CNPC. Nothing dramatic has happened.

The other thing is that many more contracts are published already - in high cost commercial databases used within the industry. Some of the writers of this book have access to those databases which contain hundreds of contracts that are still considered to be "secret". Companies may be worried about commercial competition gaining access to sensitive information - but the most widely stated objections to confidentiality clauses involve the case of a state wanting to attract other investors to other blocks - their competitors precisely. But it is in fact commercial competitors who have most access to these contracts in the first place.

An Open Oil Industry

The benefits to publishing contracts are high. It will further accelerate the learning curve of governments in negotiating contracts in the future and allow quicker acquisition of peer group knowledge. It will allow informed public debate that is less likely to flare up on mere rumour, and encourage a more mature relationship between the IOCs, governments and their publics.

APPENDICES



GLOSSARY

API Gravity Index

A system of measurement developed by the American Petroleum Institute used worldwide to denote how "light" or "heavy" a grade of CRUDE OIL is. The higher the API index the lighter the crude oil is, so that "light" crudes (such as Libyan) are 35° and above, heavy grades (such as Iranian) are below 30°. Super-heavy grades (such as some grades from Venezuela) are below 20°. See also: HEAVY OIL, LIGHT OIL

Appraisal Well

Appraisal wells are drilled after SEISMIC SURVEYS and a DISCOVERY WELL have shown some oil or gas is present, in order to determine if the find is big enough to be a commercial discovery. See also: WILDCAT WELL, DEVELOPMENT WELL, SHOWING, COMMERCIALITY

Associated Gas

Natural gas mixed up, or "associated", with oil in a rock structure and produced at the same time as the oil. Sometimes the gas is dissolved within the oil but separates as it comes up to the surface. For a long time, such gas was treated as a waste product disposed of by FLARING or VENTING. See also: NONASSOCIATED GAS, LIQUID PETROLEUM GAS

Back-In Right

A feature of oil and gas contracts that allows a party, often a government, to acquire an equity participation once a commercial discovery has been made without carrying the risk of exploration. See also: COMMERCIALITY "The President of Guinea Bissau called for 33% back in rights for the State into all mineral projects in order to establish a large and fundable National Mining Company." - Brian Menell Group 2010

Barrels Of Oil Equivalent (Boe)

A way of measuring energy production or consumption across different energy sources. Other hydrocarbons like NATURAL GAS and coal and occasionally even renewables are measured for the amount of energy they produce compared to a barrel of oil.

Barrels Per Day (Bpd)

The standard way of measuring oil production. A barrel is about 42 US gallons or 158 litres, though the exact number varies according to CRUDE OIL GRADES. The world currently consumes around 90 million barrels of oil a day, a quarter of it in the United States.

Benchmark Crude

Oils against which other oils are priced, either at discount or premium depending on the CRUDE OIL GRADES. There are three primary benchmark crudes which serve in the different oil markets of the world: BRENT CRUDE, WEST TEXAS INTERMEDIATE (WTI), and DUBAI CRUDE.

Blending

can happen either in PIPELINES or at the REFINING stage where a company may seek to be producing a particular mix of fuel products in response to fluctuating market demand.

Block

Method used to designate an area of land which could be made up of several OIL FIELDS, which divides up land into workable areas for separate CONSORTIA or companies to work on.

Blowout

The sudden and uncontrolled release of CRUDE OIL or NATURAL GAS from a well when pressure control systems fail. This risk can be mitigated by using a blow-out preventer (BOP), however only as a last line of defence to shut off the top of a well and prevent a GUSHER. It was a blowout which was responsible for the Deepwater Horizon oil spill in the Gulf of Mexico in 2010.

Booking

The process by which RESERVES are added to the balance sheet of an oil company. This is a crucial point, as reserves form key assets for the company. Oil companies such as the SUPERMAJORS who have shares listed on major stock markets must conform to regulations concerning how they book oil and gas assets. Royal Dutch Shell triggered a global scandal in 2004 when it was forced to admit that it had overbooked many of its assets.

Brent Crude

The leading global benchmark for Atlantic basin crudes, it is used to price two thirds of the world's internationally traded crude supply. Brent is a light, sweet crude produced in the North Sea, which usually trades within a few dollars of WTI. See also: BENCHMARK CRUDE

British Thermal Unit (Btu)

A unit used to describe the amount of energy released when different fuels are burned, with coal producing 25 million Btu of energy per ton and oil producing 5.6 million Btu per BARREL.

Bunkering

The illegal removal, or theft, of oil from a PIPELINE or other distribution system. Bunkering is sometimes as simple as drilling a hole in a PIPELINE and collecting the oil in a drum. More complex operations involve equipping tankers with false bottoms to conceal extra-legal shipments, or to make unauthorised shipments from well site storage tanks. Bunkering is a chronic issue in Nigeria and Iraq, although it exists in many other countries. "The theft of oil known in Nigeria as "bunkering"; along with fraud in the allocation of a controversial fuel subsidy, may together have cost the state US \$14 billion in 2011." - Financial Times 2010

Coal Bed Methane (CBM)

NATURAL GAS found in coal beds during underground mining operations. Sometimes referred to as coal seam gas (CSG), it is already in significant production in the United States and Canada, and enormous resources are proven in Australia and China. Globally, it makes a modest contribution to the ENERGY MIX but this is expected to increase. See also: UNCONVENTIONAL ENERGY SOURCES

Commerciality

A legal term widely applied in contracts to describe a situation in which hydrocarbon reserves exist in sufficient quantities to justify further investment to bring a field to production. From the moment an operating company declares commerciality, a set of regulatory and fiscal conditions kicks in. See also: RESERVES, APPRAISAL WELL, GIANT FIELD "Further drilling will be required to establish the commerciality of the block SL 2007-01-001 discovery." - Petroleum Economist 2011

Completion

The final stage in the installation and development of an oil or gas well, enabling it to begin producing, often taken on by oilfield SERVICE COMPANIES.

Concession

A lease agreement by which an oil company can enjoy the exclusive right to produce oil in any given area, as ownership of the oil is transferred from the natural owner, such as the state or landowner, to the lease holder at the WELLHEAD. Concessions were used widely in the early days of the oil industry and came to be viewed as symptomatic of exploitation by IOCS, particularly the SEVEN SISTERS, and were replaced in many countries by PRODUCTION SHARING CONTRACTS. But some countries, such as the United Kingdom and Norway, still operate them today. See also: SERVICE CONTRACT

Condensates, Natural Gas

Liquid fuels such as ethane, butane and pentane, which are present in the mix of NATURAL GAS when it comes out of the ground. These liquids are condensed out of gas before they are shipped by PIPELINE and captured for separate sale. Also known as natural gas liquids (NGLs). See also: WET GAS consortium A group of companies which join forces to pursue a joint project, and may submit joint bids for projects during a LICENSING ROUND. The trend in the oil industry over the last generation is for companies to collaborate more and more, on a case by case basis, forming consortia, to share the risk of projects which demand ever high amounts of investment. See also: JOINT VENTURE, PROJECT FINANCING, WORKING INTEREST

Contingent Resources

RESOURCES estimated to be potentially recoverable but, at a given date, not commercially viable. There is acknowledged lack of clarity within the industry between contingent resources and UNPROVEN RESOURCES.

Cost Recovery

Part of a PRODUCTION SHARING AGREEMENT which allows IOCs to claim and recover the investments they made to explore, develop and start producing oil. The important point to note is that cost recovery comes before any split of profits. Cost recovery can often reach billions of dollars. It is usually capped at a certain percentage of the value of production in any given year. Cost recovery can become a point of contention between companies and governments since governments are often unable to verify the reasonableness of costs submitted by the IOCs with their sophisticated accounting and hundreds of global affiliates. Such disputes have recently occurred in Indonesia, India and Iraq. See also PROFIT OIL, COST OIL

Cracking

A second stage refining process which has become widespread in the last 20 years. After FRACTIONAL DISTILLATION has produced a range of commercially valuable fuel products, there are byproducts like tar and bitumen. Since demand for these is limited, cracking is applied to convert them into more in-demand products, such as gasoline and diesel oil, by subjecting them to high temperatures and pressures. The term is chemical in origin, as the process involves breaking up or "cracking" the longer HYDROCARBON chains in the lower value products into the shorter ones in fuel products.

Crude Blends

A mixture of different CRUDE OIL GRADES designed to raise the value of the grades. For example, a certain grade of HEAVY OIL may not be so commercially valuable alone, but when mixed with LIGHT OIL the blend produced may be more valuable than the value of the initial volumes of individual heavy and light crude, so overall, the commercial value is increased.

Crude Oil

A fossil fuel formed from organic material over millions of years and extracted directly from the rocks where it is found, which can be further processed into various fuels and PETROCHEMICAL products for consumers. NATURAL GAS is often found dissolved in the oil. See also: PETROLEUM, PETROLEUM PRODUCTS, ASSOCIATED GAS

Crude Oil Grades

The qualities of oil from a particular field which determine the steps needed to process it into usable products and its marketability. Crude oils can be "light" or "heavy" depending on their API GRAVITY INDEX. They can also be "sour" if they contain a lot of sulphur or "sweet" if they do not. Beyond these major characteristics, which dictate a crude grade's market value when sold against BENCHMARK CRUDES, there so many other characteristics that every crude can be chemically "fingerprinted". See also: LIGHT OIL, HEAVY OIL

Depletion

The decline in production that begins to appear in oil reservoirs as RESOURCES become exhausted. Global depletion is currently estimated at between 3% and 5% per year. The impact can be managed by implementing suitable 'depletion policies' such as ENHANCED OIL RECOVERY. See also: HUBBERT CURVE, PEAK OIL, PLATEAU PRODUCTION. "The most important depletion policy instruments have been the frequency in licensing rounds, awards of licenses, and use of the fiscal system." - Chatham House 2010

Development Well

A well drilled at an existing oil field which is already producing. Many fields require continuous drilling of new wells to maximise production, and development wells can far outnumber the WILD CAT WELLS that were made to discover the resource in the first place.

Diesel

One of a series of PETROLEUM PRODUCTS produced out of CRUDE OIL during FRACTIONAL DISTILLATION, commonly used to power our cars as a heavier alternative to PETROL using a special compression engine. Diesel is also widely used by military vehicles.

Discovery Well

see WILDCAT WELL

Downstream

The series of operations that take place once oil has been found and produced out of the wellhead. Sometimes divided into midstream and downstream, with transport and the REFINING process taking place midstream and marketing and distribution occurring in the downstream phase. See also: UPSTREAM, INTEGRATED ENERGY COMPANY "ConocoPhillips announced it would separate its profitable 'upstream' oil exploration and production business from the low-margin 'downstream' jobs of refining and marketing." - Economist 2011

Drilling Mud

A mixture of clay, water and chemicals pumped down a well to make drilling more effective, by lubricating and cooling the mechanism and flushing rock cuttings to the surface. Also known as 'drilling fluids'.

Dry Well

A well which is drilled but fails to produce oil or gas in commercially viable quantities. Sometimes known as a DRY HOLE. See also: COMMERCIALITY, APPRAISAL WELL, DEVELOPMENT WELL

Dubai Crude

One of three global BENCHMARK CRUDE oils. Also known as Fateh, it is produced in the United Arab Emirates and was for many years the only CRUDE OIL GRADE in the Middle East freely traded on the SPOT MARKET.

Dutch Disease

A factor in the RESOURCE CURSE, so named after the crisis following large gas discoveries in the Netherlands in the 1960s, whereby large inflows of foreign PETRODOLLARS can have damaging consequences for an economy. As the local currency appreciates, the producing country's non-commodity exports become less competitive on world markets, and inflation can occur on the domestic market.

Elephant Field

A field with RESERVES totalling over 1 billion barrels. See also: GIANT FIELD

Energy Security

The concept that energy is so essential to modern economies that governments need to plan to ensure security of access, even when the industry itself is in the hands of the private sector. This often involves trying to diversify energy sources. For example, the USA seeks to diversify from Middle Eastern oil, or Europe from Russian gas.

Enhanced Oil Recovery (EOR)

A set of technologies to increase the RECOVERY RATE of a producing field and offset DEPLETION. Methods can include injecting natural gas, chemicals, or water into a field to increase pressure, as well as HORIZONTAL DRILLING. They account for an increasingly important part of global oil production. See also: DEPLETION

Environmental Impact Assessments (EIA)

Carried out by companies before beginning a project to identify any possible environmental, social or economic impacts, both positive and negative, and any measures needed to mitigate. Contracts now often specify the implementation of such studies but although various best practice initiatives exist at a global level such as those of the Global Reporting Initiative in Amsterdam or the International Petroleum Industry Environmental Conservation Association (IPIECA) in London, they are rarely specified in contract. EIAs are rarely made public, existing as a document held between companies and host governments.

Farmout Agreement

The sale of rights to a discovery once oil has been struck. Also known as a 'farm-down', this is a common practice among smaller exploration companies funded by seed and venture capital but who cannot then bear the costs of getting the oil out of the ground alone. The 'farmee' usually pays the 'farmor' a sum on signature, and bears a proportion of operational costs. There may or may not be an agreement for the farmee to be involved in actual production activities. See also WORKING INTEREST

Fracking

see HYDRAULIC FRACTURING

Fuel Oil

One of the heavier, more viscous products obtained from the FRACTIONAL DISTILLATION of crude oil. Fuel oil mostly has industrial uses in engines and furnaces.

Futures Contract

An agreement between two parties to buy and sell a specified quantity of CRUDE OIL, with the price agreed today, and the delivery and payment to take place at a specified date in the future. The main crude oil futures markets are the New York Mercantile Exchange (NYMEX) and the Intercontinental Exchange (ICE). Futures combine with the SPOT MARKET to form the overall trading environment for oil and gas.

Giant Field

Sometimes defined in terms of RESERVES (exceeding one billion barrels) and sometimes in terms of production output (exceeding 100,000 BARRELS PER DAY). Even larger super-giant fields are generally those whose reserves exceed five or even ten billion barrels. However the definitions remain contested. See also: ELEPHANT FIELD

Groundwater

Water held in rocks beneath the water table. It can be polluted or depleted during the drilling process, particularly HYDRAULIC FRACTURING. See also: ENVIRONMENTAL IMPACT ASSESSMENT

Heavy Oil

More viscous grade of crude oil with a lower API GRAVITY than LIGHT OIL. Production of heavy oil is becoming more common around the world despite greater extraction and processing costs, because light oil supplies have dwindled. Extra-heavy oil, such as that found in the Orinoco belt of Venezuela, is generally defined as having an even lower API Gravity of 7 to 11°. See also: OIL SANDS

Horizontal Drilling

A type of directional drilling which allows drillers to access pockets of reserves that are harder to reach by a vertical well, often used as a cost-effective technique at OFFSHORE locations. In 1990, Iraqi leader Saddam Hussein accused Kuwait of using horizontal drilling to steal Iraqi oil and used it as a pretext to invade in the first Gulf War. See also: ENHANCED RECOVERY

Hydraulic Fracturing

Also known as FRACKING, it involves shooting water, sand and other compounds at rock structures at such high velocity that they produce small fractures through which CRUDE OIL and NATURAL GAS can then be extracted. The development of fracturing in the United States since 2005 has led to a massive increase in SHALE GAS production, despite environmental and safety concerns associated with the procedure. See also: ENHANCED OIL RECOVERY

Integrated Energy Company

A company active in all stages of the value chain, from exploration through production to shipping and refining, to distribution and retail marketing of fuel products. Most SUPERMAJORS are integrated energy companies.

International Oil Company (IOC)

A private sector oil company with operations in many countries. The largest IOCs are SUPERMAJORS and the largest historically were the SEVEN SISTERS. The term is often used in contrast to NATIONAL OIL COMPANIES, state-owned entities created after waves of RESOURCE NATIONALISM in the 1960s and 1970s led to nationalisation of the sector in many countries.

Joint Venture (JV)

A well-established feature of the oil and gas industry whereby two or more companies agree to share profit, loss and control in a certain project, common in the 'UPSTREAM sector where projects can be too big for a single company to finance on its own. Partners can be from both the public and private sectors. "JVs are a useful way of gaining the benefits of collaboration without the economic and political risk associated with a merger or other business combination." - Ernst & Young 2011

LIBOR

The London Interbank Overnight Rate, a rate of interest often used in the financial terms which govern oil contracts.

Licensing Round

An event at which oil and gas acreage is opened up by a government to competing bids by exploration and production companies or consortiums. Licenses are then awarded to the most attractive bid. Competitive and TRANSPARENT licensing rounds are seen as key to efficient management of a nation's resources and are often implemented by using auctions which publicly state the criteria under which bids will be judged. See also: BLOCK, WORKING INTEREST

Light Oil

Light crude oil is made up of smaller molecules than HEAVY CRUDE OIL and therefore produces a higher percentage of commercially valuable products (like gasoline and diesel) when refined, thus fetching a higher price on global markets. See also: GRADES OF CRUDE OIL , HEAVY OIL

Liquefaction

Conversion of gases to liquid form, usually for ease of storage and/or transport. liquefied natural gas (LNG) NATURAL GAS which has been converted into liquid form by cooling it to approximately 162 °C (260 °F), for ease of storage and transport. This expensive process is used when a gas pipeline is unavailable to transport the gas produced to the marketplace. The first LNG plant was built in Algeria in 1962. Qatar accounts for 25 percent of global LNG production. LNG's market position has been challenged in recent years by the explosive growth in SHALE GAS inside the United States, leading to recalculations of how much gas the US, once seen as a major LNG market, will import in future years. See also: LIQUEFACTION

Local Content

The purchasing of local goods and services and training and development of national staff as a result of oil production with the goal, from the host government side, of maximising broader economic growth as a result of the oil industry and building national expertise which over time allows full national control of the industry. Local content is often a negotiation point between companies and governments stipulated in the terms of contracts. Brazil is sometimes seen as one of the most successful examples of local content application.

Metering

Measuring the amount of oil or gas produced out of a well or flowing down a PIPELINE for commercial purposes. Meters can now measure many different CRUDE OIL GRADES flowing down one pipe to up to 0.15 percent accuracy. See also: BUNKERING

National Oil Company (NOC)

A state-owned oil exploration and production company, usually used in contrast to the idea of IOCS. Because of the wave of nationalisations caused by RESOURCE NATIONALISM, the NOCs now represent 18 out of the biggest 20 oil companies in the world, measured in terms of their oil and gas assets. Some NOCs are run on corporatised lines and have started to compete internationally, notably CNPC from China, Algeria's Sonatrach, Petronas from Malaysia and Petrobras from Brazil. Petrobras and Colombia's Ecopetrol also have minority private sector shareholders.

Natural Gas

Primarily methane. It occurs naturally and is used as a fuel.

Natural Gas Condensates

see CONDENSATES, NATURAL GAS

Non-Associated Gas

NATURAL GAS found in reservoirs where no liquid HYDROCARBONS are present or where no significant quantities of liquid hydrocarbons exist. Contrasts with ASSOCIATED GAS.

Offshore

The drilling of wells into the seabed. Offshore drilling began in the nineteenth century and significant production was achieved on Venezuela's Lake Maracaibo in the 1920s but modern techniques began in the Gulf of Mexico in the 1940s. Offshore is generally regarded as drilling that takes place on the continental shelf in less than 200 metres of water, but in recent years deep offshore has evolved with drilling in water deeper than 2,000 metres. Offshore is often controversial because of environmental risks but is a growing component of global production and is particularly significant to production in Brazil, West Africa, the Gulf of Mexico and increasingly the Levantine basin. See also: PRE-SALT

Oil In Place (OIP)

CRUDE OIL estimated to exist in a field or a reservoir. Not all that oil will be extracted, however, because of the properties of a rock formation. The exact percentage will depend on the RECOVERY RATE.

Oil Sands

An UNCONVENTIONAL ENERGY SOURCE, made up of a mixture of sand, water and BITUMEN. Usual techniques cannot be applied here and extraction often resembles mining more than conventional drilling, using techniques that are far more energy- and capital intensive. Oil sands have only recently been included in the world's oil reserves due to high oil prices and technological advances. The largest deposits currently known are the Athabasca tar sands in Canada. See also: HEAVY OIL

Oil-Backed Loan

A loan in which future oil revenues are pledged as collateral by a producing country. A prominent feature of Chinese engagement in resource-rich African countries such as Angola and Nigeria, and often used to finance large infrastructure projects. "If the Government of South Sudan feels that oil-backed loans are currently necessary to prevent economic collapse, it is critical that robust protections are put in place to minimize future costs and consequences." - Global Witness 2012 oilfield service companies see SERVICE COMPANIES

OPEC

The Organization of the Petroleum Exporting Countries, a cartel formed in 1961 through which 12 member states agree on a shared quota for the production and sale of petroleum. OPEC is intimately linked to the rise of RESOURCE NATIONALISM and the industry in all of its member states is dominated by NATIONAL OIL COMPANIES. As of 2012, OPEC produced about 40 percent of the world's oil. With its large share of global production, OPEC has become effective in determining the price of oil on international markets, but there can be sharp divergence of interests between its various members, who are all in different situations as regards their state of DEPLETION and degree of DEPENDENCY on oil revenues. See also: SWING PRODUCER operator The company within a CONSORTIUM with overall decision-making authority at an operational level on an oil or gas project, usually also with the greatest financial stake. See also: JOINT VENTURE, WORKING INTEREST

Petrochemicals

Chemicals derived from PETROLEUM or other fossil fuels, largely used in the plastics industry. There are currently 4,000 chemicals classified as petrochemicals.

Petrodollar

Since oil sales are generally denominated in US dollars, petrodollars are the funds from oil sales. The dollar denomination has had implications for linkages between the oil industry and the US economy which has led some producers, notably Venezuela in recent years, to debate ending it. petrol Or gasoline, one of the key products of crude oil used mostly for transport.

Petroleum

The term of art to denote both crude oil and petroleum products produced by REFINING. The terms "oil" and "petroleum" are sometimes used interchangeably.

Pipeline

A pipe, usually underground, used to transport oil or gas over long distances. Although pipelines can be constructed underwater most oil transport by sea is done by tankers. Because pipelines are so expensive and significant ones often cross multiple national borders, pipeline negotiations often involve complex geopolitics.

Plateau Production

Keeping production out of a mature oilfield steady for a number of years. This usually involves using ENHANCED OIL RECOVERY techniques to mitigate DEPLETION.

Play

A group of oil fields or prospects in the same region that are controlled by the same set of geological circumstances.

Possible Reserves

Have a 10 percent certainty of being produced. Combined with PROVEN RESERVES and PROBABLE RESERVES in the industry term 3P. See also: RESERVES

Pre-Salt

Oil and gas deposits that are found beneath huge layers of salt, deep in the rocks. Pre-salt deposits could not be exploited commercially until recently because of technological limitations but now represent a significant portion of projected future finds. The most famous pre-salt region is Brazil's Tupi field, under 2,000 metres of water and a further 5,000 metres of salt, sand and rock. See also: OFFSHORE

Probable Reserves

Have a 50 percent certainty of being produced under current market conditions. Probable and PROVEN RESERVES are often combined in a definition known as 2P, which is the most common way to assess the amount of oil a field is likely to produce. See also: RESERVES

Production Sharing Contract (PSC)

An agreement between a company and a host country on the percentage of oil each party will receive after specified costs and expenses have been paid under COST RECOVERY. Under a PSC, the company generally gives the state cash payments in the form of ROYALTIES and income tax. Also known as a production sharing agreement (PSA). See also: CONCESSION, SERVICE CONTRACT

Profit Oil

The portion of revenues divided up between participating parties and a host government in a PRODUCTION SHARING CONTRACT, once the operator has recovered its investment by deducting COST OIL production. "As the profit oil is split between the companies and the state, the cost of allowable expenditures is passed on to the state in the form of reduced profit oil." - Civil Society Coalition on Oil in Uganda 2010

Project Financing

Arrangements for capital linked to individual production projects. Even SUPERMAJOR oil companies use financing from banks and financial instruments such as bonds extensively because of the increasingly capital-intensive nature of oil exploration and production. Global investment in UPSTREAM has risen from about US \$100 billion in 2000 to about \$600 billion in 2011, a level which the industry anticipates is likely to hold or rise in the next decade.

Proven Reserves

Classified as having a 90 percent certainty of being produced at current prices, with current commercial terms and government consent, and are also known in industry as 1P. See also: RESERVES

Recovery Rate

The amount of oil that will be extracted compared to the amount of oil in place. Historically rates of 25 percent were common but rates are now rising to 50 percent and above because of extensive use of ENHANCED OIL RECOVERY.

Refining

Processes which convert crude oil and gas into usable products, such as FRACTIONAL DISTILLATION and CRACKING. Refining is a huge industry in its own right but with volatile profit margins in recent years which have caused some INTEGRATED ENERGY COMPANIES to consider getting out of it.

Rent

A revenue stream that accrues above and beyond a normal economic return on activity or profit. The concept was first developed by economists Adam Smith and David Ricardo in the 18th and 19th centuries. It dominates the economics of the global oil industry because of sharply varying costs of production for a commodity sold at roughly the same price. For example, it could cost US \$5 to produce a barrel of oil in Libya and \$60 in some fields in Canada, yet both sell for the same price, meaning the margins are massively different. Economists differentiate between rent and a normal return on capital, or profit, and argue that it should be treated differently. Rent encourages rentseeking, an integral part of the concept of RESOURCE CURSE.

Reserves

A subset of oil and gas RESOURCES, which are commercially viable to extract. Definitions used around the world still differ somewhat but there is increasing standardisation under a series of definitions produced by the US Society of Petroleum Engineers (SPE). Reserves are further divided into the sub-categories: PROVEN RESERVES, PROBABLE RESERVES, AND POSSIBLE RESERVES. Classification of reserves can be crucial to the value of a company, as it is a key way for a company to show its assets through BOOKING RESERVES.

Reserves-Production Ratio

The number of years a country can continue producing at its current rate given the level of its PROVEN RESERVES. BP's Statistical Analysis for 2012 estimated the global R/P ratio at 54 years. At one end of the spectrum are the United States, Norway and the United Kingdom with respectively 10, nine and seven years production left. At the other, Saudi Arabia has 65 years left, Kuwait 97 years and Iran 99 years.

Resource Diplomacy

The use of state diplomacy to negotiate access to natural resources. For example, the United States has used resource diplomacy in the Gulf, and China is increasingly using it in Africa.

Resource Nationalism

The political feeling that control of natural resources should be in the hands of the countries which own them. Resource nationalism grew in the oil industry as a result of dominance by the SEVEN SISTERS and led to the creation of OPEC and nationalisation of the industry in many countries, leading to the rise of the NATIONAL OIL COMPANIES.

Resources

All quantities of petroleum which are known to exist including those which are not, at that time, considered to be commercially viable to extract. This can change as technology develops and with higher oil prices. For example, the OIL SANDS were previously classified as RESOURCES but are now RESERVES.

Resource Curse

The theory that natural resource wealth can sometimes paradoxically create negative development outcomes in producing countries, due to weakened government institutions, neglect of other key sectors of the economy (known as DUTCH DISEASE), corruption, high income inequality and pollution. Sometimes called the 'paradox of plenty'. See also: RENTS "The resource curse is not inevitable. What's needed is transparency and accountability." - Petroleum Economist 2011

Royalties

A percentage share of production, or of the value of the production which goes to the government regardless of the rate of production or costs to the operator. Royalty rates often change incrementally as production increases. In calculating revenue flows from an oil project, royalties take precedence, with other categories such as COST OIL and PROFIT OIL subordinate. CONCESSION type contracts are almost entirely based on royalties.

Royalty Interest

In contrast with a WORKING INTEREST, the ownership of a portion of revenues produced from an operation without bearing the ongoing production costs. See also: ROYALTY, PRODUCTION SHARING CONTRACT "It's generally recommended that investors without deep pockets and a solid working knowledge of oil and gas exploration stick with limited liability royalty interests." - Investopedia

Sedimentary Basin

Geologically, areas where there have been huge deposits of organic matter millions of years ago which may then have become compacted and 'cooked' into oil and gas. Because of continental shifts and other geological movements, such areas can now be deep inland even if they were originally underwater. For example, the Texas and Oklahoma oilfields of the United States are part of a sedimentary basin formed in what was an extended Gulf of Mexico while in Libya oil-bearing formations of the Sirte Basin extend a thousand kilometres inland, into the Sahara desert. See also: CAP ROCK, ANTICLINE "The sedimentary basins in New Zealand that are likely to contain oil and gas are young (less than 80 million years old)." - Encyclopedia of New Zealand 2012

Seismic Survey

Technology similar to ultrasound used to build a picture of underground rock structures during early stage oil and gas exploration. Seismic works by sending out sound pulses and using the measurements of how and when they return to estimate rock structures, since different kinds of rock offer different levels of resistance to the signals. Combined with information from an APPRAISAL WELL these surveys form the basis for further investment decisions. Seismic data has increased exponentially in recent years with the development of data acquisition and interpretation technology. See also: ANTICLINE, SOURCE ROCK, COMMERCIALITY

Service Companies

Oil companies which do everything but actually own or bid on resources with governments. The oil industry has been subject to outsourcing since the 1980s meaning that SUPERMAJORS often contract large parts of their operations to service companies. The largest, such as Schlumberger and Halliburton, employ tens of thousands of employees and can win single field contracts worth hundreds of millions of dollars.

Service Contracts

An agreement whereby a foreign oil company is contracted to produce a country's oil reserves on a simple fee basis. The state maintains sole rights over the RESERVES, and the contractor is compensated by a fee per barrel, plus COST RECOVERY. See also: PRODUCTION SHARING CONTRACT, CONCESSION

Seven Sisters

A term coined in the 1950s to describe the oil companies which dominated the early years of the global oil industry. They were Anglo-Persian Oil Company (now BP), Gulf Oil, Standard Oil of California (Socal) and Texaco (now Chevron), Royal Dutch Shell, Standard Oil of New Jersey (Esso) and Standard Oil Company of New York (Socony) (now ExxonMobil). See also: INTERNATIONAL OIL COMPANY

Shale Gas

NATURAL GAS formed from being trapped within shale rock formations; currently the source of 20 percent of US natural gas production due to the increase in HYDRAULIC FRACTURING, or FRACKING, and predicted to increase in importance in the future by the EIA. showing, oil or gas When a company announces that oil has been found in an exploratory well. Exploration companies often use showings to make dramatic public announcements to boost their profile 51 JARGON BUSTER: GLOSSARY and share price, but a showing does not necessarily mean that COMMERCIALITY will be declared.

Signature Bonus

Lump sum of money paid up front by companies to governments upon signing a PRODUCTION SHARING CONTRACT or CONCESSION agreement. Sometimes used as the deciding factor in a tiebreaker between bidders. "Under the last bid round in Libya, Occidental paid \$1 billion as a signature bonus"

Sour Oil

CRUDE OIL GRADES which have high sulphur, decreasing their market value, in contrast to SWEET OIL.

Spot Market

The global market where oil can be traded dynamically. Before the spot market appeared in the 1970s, oil was traded largely in long-term fixed contracts. But now a single shipment of oil can be traded up to ten times from the time it leaves a producing country to the time it reaches port.

Spudding

The very start of the drilling process at a new well by getting rid of any bits of rock, dirt or other sediment.

Subsoil Rights

Who owns resources under the ground. In many countries, subsoil rights belong to the state which is why the state develops an oil industry when deposits are found. In the United States, by contrast, subsoil rights attach to the landowner at the surface, which is what triggered oil rushes in Texas, Oklahoma, and elsewhere.

Super-Giant Field

see GIANT FIELD

Supermajor

The world's largest publicly owned oil and gas companies and the modern day equivalent of the SEVEN SISTERS, considered to be BP, Chevron, ExxonMobil, Royal Dutch Shell and Total, with ConocoPhillips sometimes also included. See also:: INTERNATIONAL OIL COMPANY

Sweet Oil

CRUDE OIL GRADES which have low sulphur, increasing their market value, in contrast to SOUR OIL.

Swing Producer

A country which has production capacity significantly above what its actual levels of production are, allowing it to raise production overnight and therefore lower market prices. Saudi Arabia has been the sole swing producer for the last 30 years. Other countries such as Iraq and Libya sometimes debate a similar role. tar sands see OIL SANDS

Tight Hole

A drilling well about which all information is kept confidential, most often used for APPRAISAL WELLS.

Transit Fees

Fees charged by a country to allow oil or gas to be transported across its territory, either by pipeline or through shipping channels such as the Suez and Panama Canals.

Transparency

Improved access to information such as revenues, prices and contract terms, helping to 'follow the money' and prevent corruption. Transparency first emerged as a high profile norm in the 1990s as issues of governance came to dominate the global debate on development. A growing movement demanding greater transparency in the oil and gas industry centres around the EITI initiative. See also: RENT AND RENT-SEEKING "Transparency of payments made from a company to a government can help to demonstrate the contribution that their investment makes to a country." - EITI

Unconventional Energy Sources

Any resources accessed by means other than the conventional oil well method. This is an umbrella term that shifts over time, but currently used to refer to sources such as SHALE GAS, COAL BED METHANE and OIL SANDS. "While these reserves may hold the key to the future oil supply, companies must deal with the additional time, cost and resources it takes to extract the unconventional oil." - Financial Times 2010

Unitisation

The way a single oil bearing rock formation is divided by two countries when it straddles a border. For example the United Kingdom and Norway have a unitisation agreement in the North Sea. Unitisation requires agreed borders, but since the oil could be sucked from one side of the border to the other also goes beyond it to require agreement and cooperation on geological studies and production figures.

Unproven Reserves

An umbrella term for PROBABLE RESERVES and POSSIBLE RESERVES. see RESERVES

Upstream

The capital-intensive, high risk-high reward initial stages of the industry involving exploration and production. See also: MIDSTREAM, DOWNSTREAM, INTEGRATED ENERGY COMPANY

Well Completion

see COMPLETION

West Texas Intermediate (WTI)

The US crude oil BENCHMARK, traditionally trading within a few dollars of BRENT CRUDE. It is a LIGHT OIL with a low sulphur content, so it is considered to be a high quality crude. See also: BENCHMARK CRUDES

Wet Gas

NATURAL GAS containing other hydrocarbons that condense as the gas rises to the surface and lower temperatures than existed in the reservoir. Typically, wet gas contains less than 85 percent methane. The natural gas liquids are generally separated from the methane to ensure that the natural gas sent to consumers has a consistent thermal energy content; though wet gas is sometimes more valuable than DRY GAS, as the liquids are themselves sellable commodities such as butane. See also: DRY GAS, CONDENSATES

Wildcat Well

An exploratory well into rock structures not known to contain oil RESOURCES, under conditions of little or no geological certainty. A high risk "make or break" venture for drilling companies. If the well is in a field that has not produced before it is known as a "new-field wildcat". If it is more than 3 kilometres away from any producing well it is called a "rank wildcat". If the well discovers oil, it is known as the "discovery well" of that field. See also: APPRAISAL WELL DEVELOPMENT WELL

Working Interest

The percentage stake taken by a company in an oil or gas operation, where they are liable for a proportion of the ongoing operating costs but also has a claim to a share of the profits. This contrasts with a ROYALTY INTEREST. See also:

PRODUCTION SHARING CONTRACT, COST RECOVERY

This is the first book about oil contracts for non-experts. It was written in a five-day booksprint by a group of corporate lawyers, government negotiators and development specialists.

We all use or produce oil but the contracts that make it all possible have been secret. Until now...

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